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Bessemer Plant of Steel & Tube Company

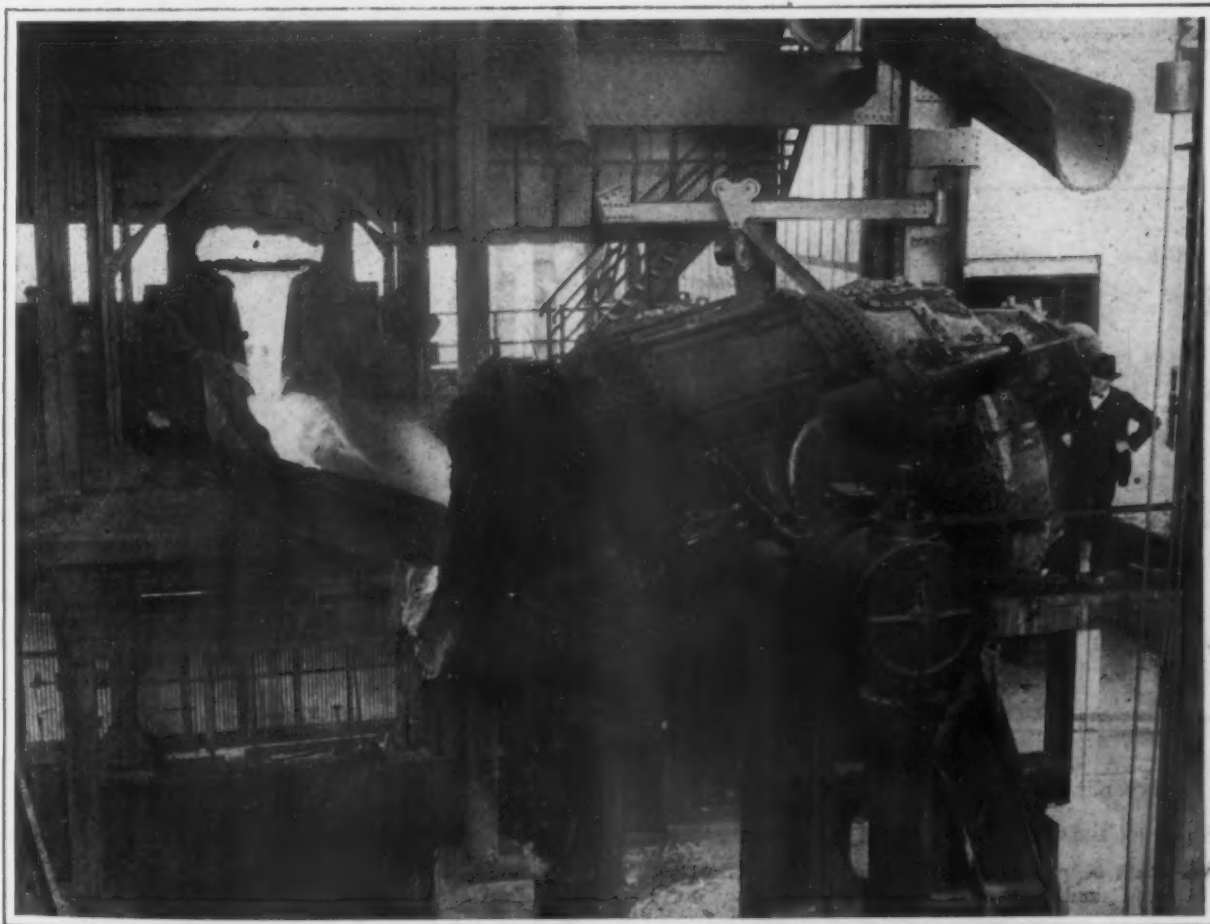
Latest Developments in Design and
Equipment Embodied in Addition to
Mark Works for Manufacture of Pipe

BY GILBERT L. LACHER

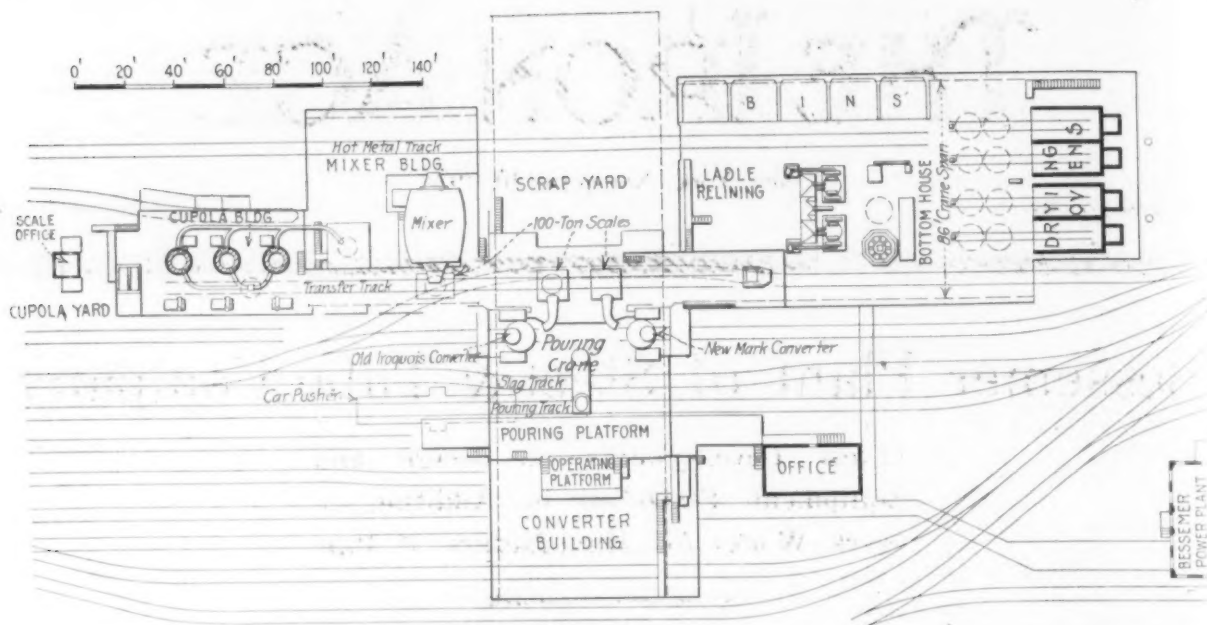
DURING the past fifteen years American production of open-hearth steel has tripled, while the output of Bessemer steel has remained practically stationary, never in any year equaling the record tonnage of 1906. The ascendancy of the open-hearth process is no longer questioned, but nevertheless it is acknowledged that Bessemer steel is still supreme for certain purposes, among which is the manufacture of steam, water and gas pipe. This commodity is generally cut and threaded by hand at the place of installation, and hence Bessemer pipe, because of the greater ease with which it is worked, is much preferred to the open-hearth product. So the

leading western manufacturer of pipe has constructed what is probably the most complete, and certainly the most modern, Bessemer plant in the United States.

Up to this time the Mark plant has been supplied with Bessemer ingots by the converter at the Iroquois Works, South Chicago, also belonging to the Steel & Tube Co. of America. The new Bessemer plant, embodying the latest developments in design and equipment, is situated at the Mark works at Indiana Harbor, Ind., a more logical location. Hot metal is furnished by the Mark works blast furnace, while Bessemer ingots may be conveyed without delay to the soaking pits serving the pipe mills.



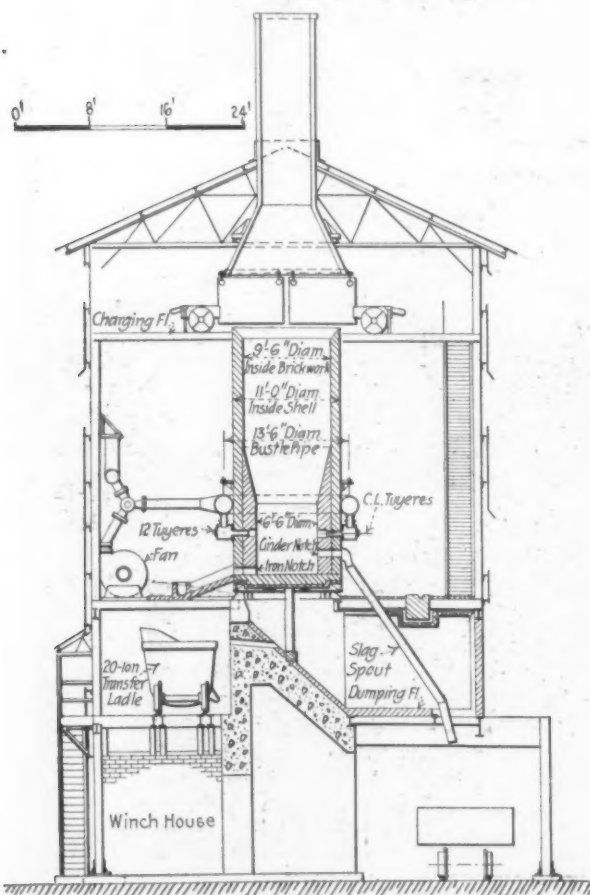
Charging the Converter; the Runner Carrying the Iron to the Converter Is Operated Hydraulically from the Transfer Track Platform. The hot metal ladle is tilted for charging by a tipping device mounted on the track scale platform. The scrap chute is to be noted above the man at the right



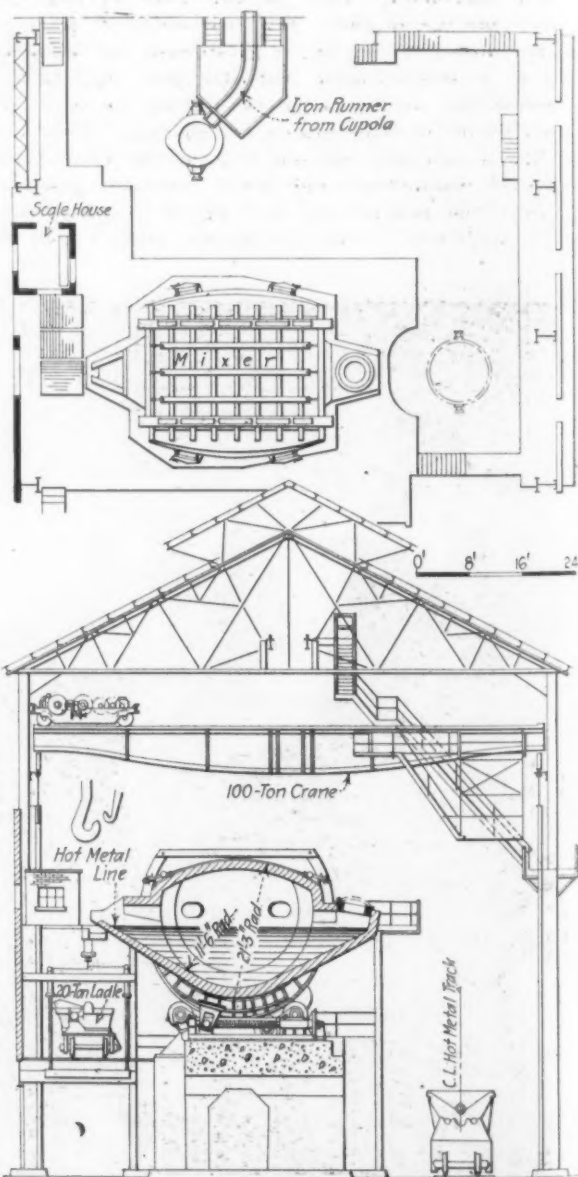
General Layout of the Bessemer Plant, Showing How Each Unit Is Arranged Conveniently to the Others with Which It Has to Operate. Hot metal comes from the left. The skull cracker and scrap yard are beyond the right end of the cut

Placed at the northwest corner of the Mark works, adjacent to Lake Michigan and the tracks of the Baltimore & Ohio, the New York Central and the Elgin, Joliet & Eastern Railroads, part of the buildings of the new Bessemer plant are located on land reclaimed from the lake.

The cupola yard, 97 x 140 ft., is served by a 10-ton overhead electric traveling crane and a skull cracker, both of which were furnished by the Morgan Engineering Co., Alliance, Ohio. The skull cracker trolley, at a height of 65 ft., operates on runways which not only extend across the end of the yard, but



Section Through One of the Three Cupolas, Showing the Iron Runners and Dumping Arrangements. Cinder disposal is indicated



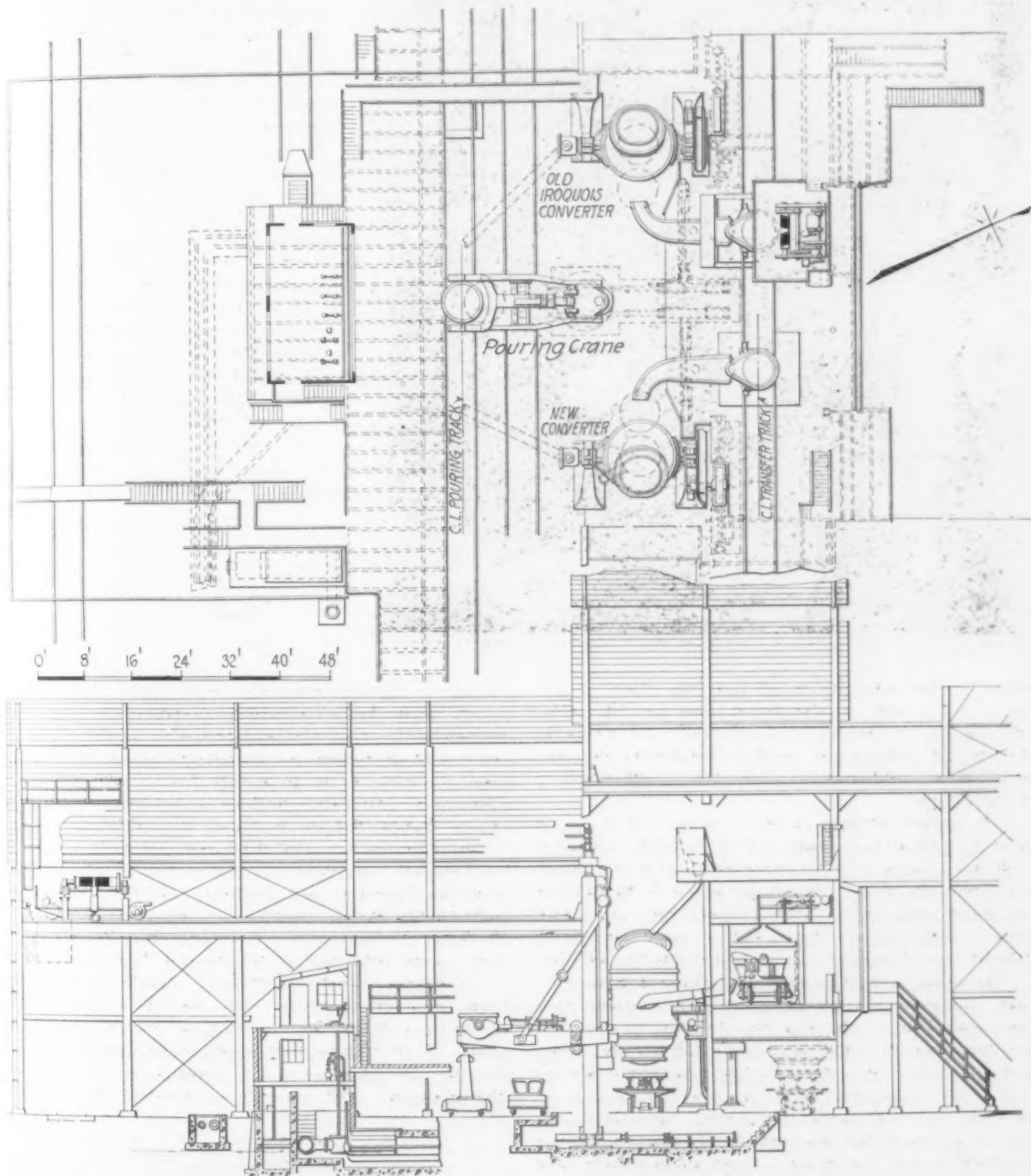
Plan and Section Through Mixer Building, Showing Method of Tilting Mixer by a Massive Screw and Nut. The plan shows the discharge end of the iron runner from the cupola building. The crane here handles both the ladle of cupola metal and the ladle of blast furnace metal coming in at right

project over a track on each side. This overhang gives greater flexibility in operation. On the one side the skull cracker crane may be used for lifting slag pans and dumping their contents in the cupola yards, where metal may be reclaimed from the slag by magnet. On the other side, it may be used to break up metal for the converter scrap yard, which is served by the track under the overhang of the runway.

Used for the storage of pig iron, scrap, limestone

balanced double-cage Otis elevators have been provided.

In the cupola building, 40 x 66 ft., are three 11-ft. cupolas with a melt of 20 tons per hr., furnished by the Pennsylvania Engineering Works, New Castle, Pa. The cupolas may be charged at any point around their circumferences, as the tops of the cupola shells are level with the charging floor, the stacks being suspended above them from the roof members. Each cupola has its individual 75-hp. motor-driven fan, with



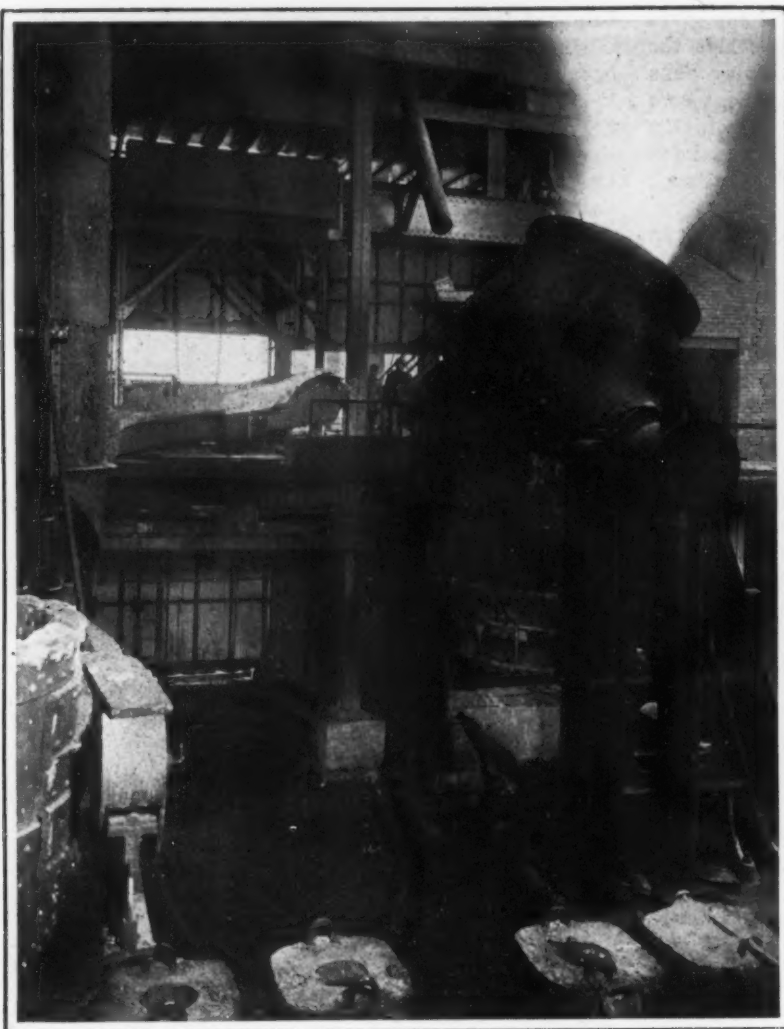
Plan and Section Through the Blowing Group. This shows the method of filling the converters with mixer metal poured through movable runners which, when not needed for this purpose, may be turned out of the way

and coke, the cupola yard has a traveling crane equipped with a motor-closing bucket furnished by the Hayward Co., New York. The advantage of individual motor operation is that it made unnecessary any allowance in the height of the crane runways, usually about 14 ft., for the opening and closing of the bucket.

Yard materials are placed in barrows, passed over two three-ton Standard Scale & Supply Co. blast furnace stock yard scales, and then elevated to the cupola charging floor. For the latter purpose two

a capacity of 10,000 cu. ft. per min. and a maximum pressure of 14 oz., and wind piping so arranged that a by-pass may be made, in case any one of the three fans gets out of working order.

All three cupolas are served by two sets of iron runners, one of which delivers to a 20-ton transfer ladle and the other to a 20-ton ladle stand in the adjoining mixer building. A motor-driven winch conveys the transfer ladle either direct to the converters, or to the mixer building, in case it is desired to transfer the contents of the ladle into the mixer. Ordinarily,



The Converter in Blowing Position; It Is to Be Noted That the Iron Runner (Shown at Left of the Two Men) Has Been Swung Out of the Way, So That It Will Not Interfere with the Movement of the Converter. At right of the base of the flame from the converter is the mouth of the scrap chute, used for charging scrap into the vessel. Underneath the bottom of the vessel is to be seen the slag car. The slag pan has lugs on each side, through which crane hooks are inserted for dumping the contents in the cupola yard. The blast, as is usual, enters through the trunnion by the heavy vertical pipe shown in right foreground. At extreme left is a portion of the hydraulic center crane and of the steel ladle upon it. The tops of ingot molds occupy the immediate foreground

however, iron intended to go into the mixer is delivered by runner to the ladle stand in the mixer building, but the provision by which the transfer ladle may also be used for this purpose is a precaution taken to reduce to a minimum the possibility of interruptions in operations.

The mixer building is 66 x 75 ft. It is served by a Morgan 100-ton crane, which transfers hot metal from the cupolas and the blast furnace to the mixer. The ladle containing the cupola metal is lifted from the stand serving the iron runner, while the blast furnace ladles, of 60 tons capacity each, are taken directly from hot metal cars switched into the building.

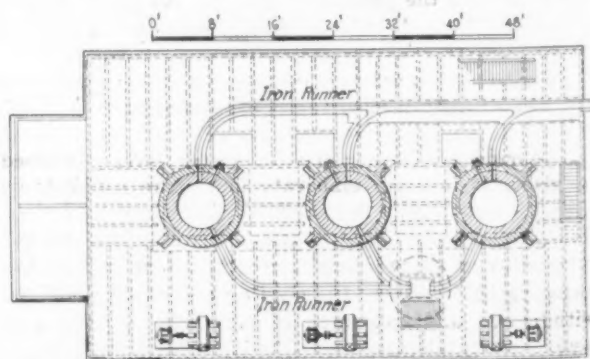
The mixer, constructed by John Mohr & Sons, Chicago, has a capacity of 600 tons. Tar burners have been placed above the slag line to effect better temperature control. Tilting is accomplished by screw and nut, power being furnished by two 50-hp. motors. The mixer commands particular attention because of its electrical and mechanical safety appliances. In case of accident, the operator, by leaving the control platform, causes the mixer to stop automatically, and to return to a horizontal position. When the weight of the operator is removed from the platform, pawls engage teeth cast on the runners of the mixer, bringing operations to a halt. No sooner is this done than an automatic control is set into operation, which brings the mixer to normal position.

Iron from the mixer is discharged into a transfer ladle resting on a platform in the track, where it is weighed on a recording scale. The ladle is then conveyed by winch to the converter building. Here two additional platform scales have been provided, one adjacent to the present converter and the other for the proposed converter. The purpose of these last two scales is to make it possible to determine accurately the

amount of high carbon metal to be added to the converter baths for recarburizing purposes, in case the company wishes to make a high carbon product. They are further testimony to the care exercised by the designing engineers in preparing for all possible contingencies. All three platform scales were furnished by the Standard Scale & Supply Co., Pittsburgh.

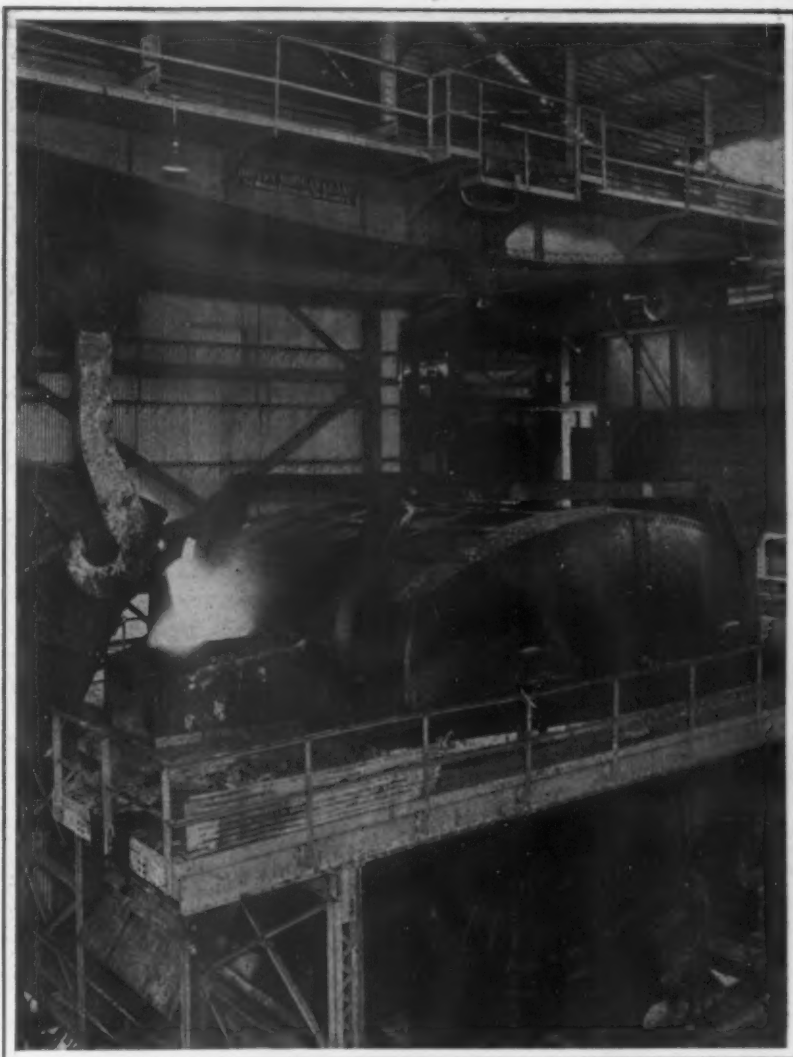
Movable runners, provided to carry iron from transfer ladle into the converters, are operated hydraulically from the transfer track platform. Electrically-driven ladle tipping devices, mounted on both scale platforms, discharge the contents of the ladle into the runners. These were furnished by the Morgan Engineering Co.

Above the transfer track is a converter scrap platform, adjacent to which is the converter scrap yard, served by a 10-ton Morgan overhead electric traveling crane. It is notable that no elevators, skip hoists or the like, are employed to lift scrap from the yard to the platform. All material is handled by magnet.



Plan of Cupola Tapping Floor, Showing the Two Sets of Iron Runners—the Upper One to the Mixer Building; the Other to a Transfer Ladle on the Floor Below

Pouring Hot Metal from the Blast Furnace into the 600-Ton Mixer. A 100-ton overhead traveling crane handles the hot metal ladles to and from the mixer, lifting them off the floor with the main hoist and tilting the ladles with the auxiliary hoist. The mixer itself, which, with contents, weighs nearly 1000 tons when full, is tilted by screw and nut, power for this purpose being furnished by two 50-hp. motors. The action is similar to that of a rocking chair, except that the heavy mass rolls forward upon eight massive spool rollers, instead of upon a flat surface. Thus the center of gravity remains nearly stationary and the pouring spout does not advance far from its position of rest. This insures that the stream of molten mixer metal falls near the center of the ladle car and eliminates slopping



Furthermore, the crane runway extends over the converters, so that all scrap dropped under the vessels may be picked up by magnet and conveyed to the scrap yard.

Scrap or ferroalloys for use in the converter are dropped by magnet into chutes, the tops of which are situated just above the level of the scrap platform.

Arranged for two 15-ton converters, furnished by the Pennsylvania Engineering Works, the converter building is 68 x 190 feet. Each vessel is operated by two 75-hp. motors. One converter is now in operation, and the second one is to be moved from the Iroquois plant and installed presently. The arrangement is such that the converters will blow in opposite directions.

A track has been placed directly under the converters for the slag and bottom cars. An hydraulic center crane handles the steel ladle after the converter has poured, conveying it to position over the ingot molds next to the pouring platform. An hydraulic car mover, built by the Morgan Engineering Co., moves the ingot cars to and from the pouring platform.

Centrally located between the two converters, the operating platform commands an excellent view of all operations in the converter building. It is adjacent to the pouring platform and on a higher level. Inclosed in glass, it is more elaborate and more comfortable than the usual operating pulpit. On this platform are located the levers for operating the converters and for controlling each movement of the center crane—the swinging of the arm, lowering and elevation, and the withdrawal and extension of the ladle on the arm itself.

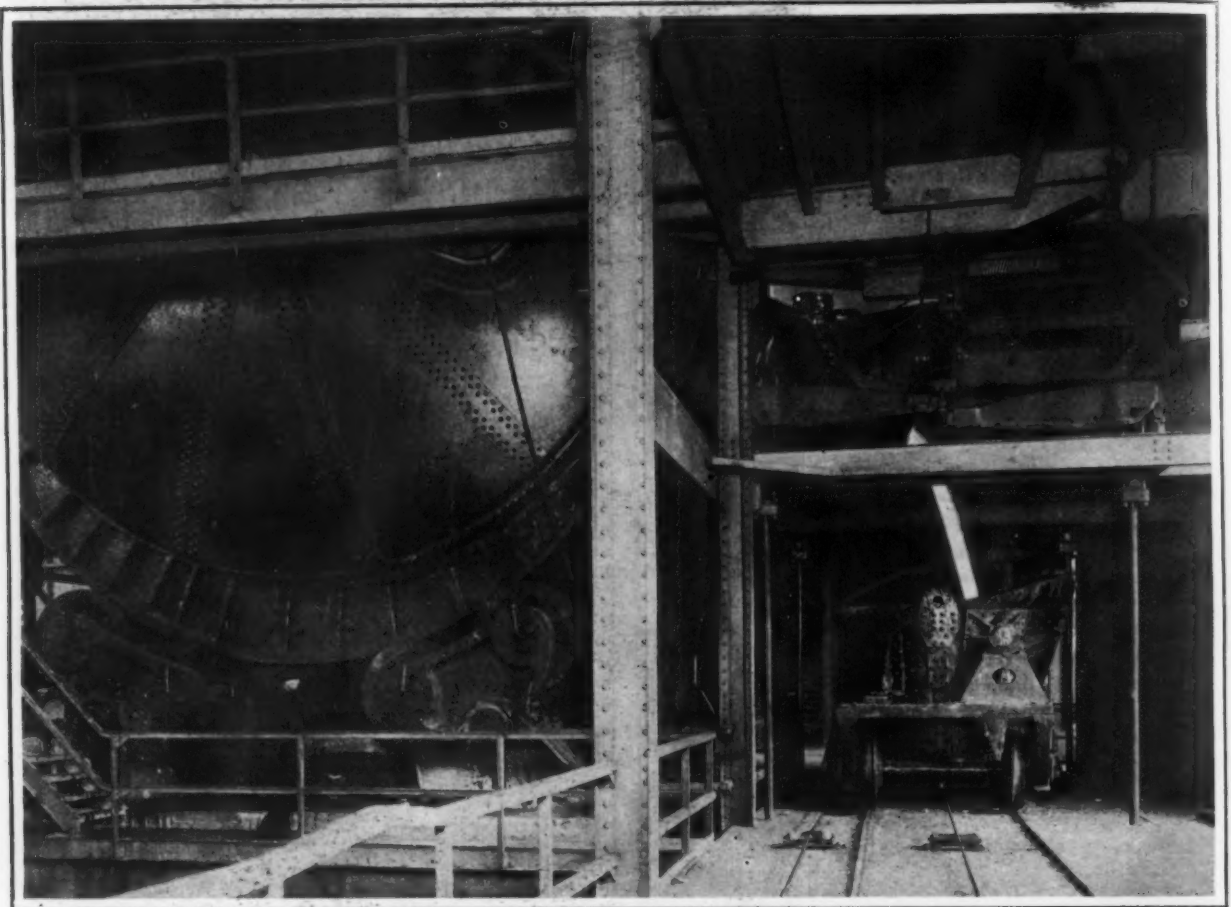
All hydraulic valves and the electric control connections for the converter are underneath the operator's platform. At the end of the pouring platform is a coal-

fired oven capable of drying 48 stoppers at one time.

A 20-ton Morgan overhead traveling crane, serving the converter building, is used to place the steel ladle on the center crane, and to convey ladles to the repair and relining department back of the charging platform. Slag from the converters and steel ladles is poured into slag cars, which are removed to the cupola yard and disposed of in the manner previously described.

Adjoining the converter scrap yard is the bottom house, 86 x 140 ft. Along its outside wall, beyond a track running the length of the building, are the raw material bins. A 20-ton Morgan overhead traveling crane equipped with grab bucket commands the entire house. A Thos. Carlin Sons Co. grinding machine is used to grind clay and old brick for bottoms. There are four sets of coal-fired drying ovens, each oven taking two bottoms. Hydraulic jack cars are employed, both for removing old bottoms from the converter and for putting new ones in. For this purpose a permanent hydraulic connection has been provided adjacent to the converter.

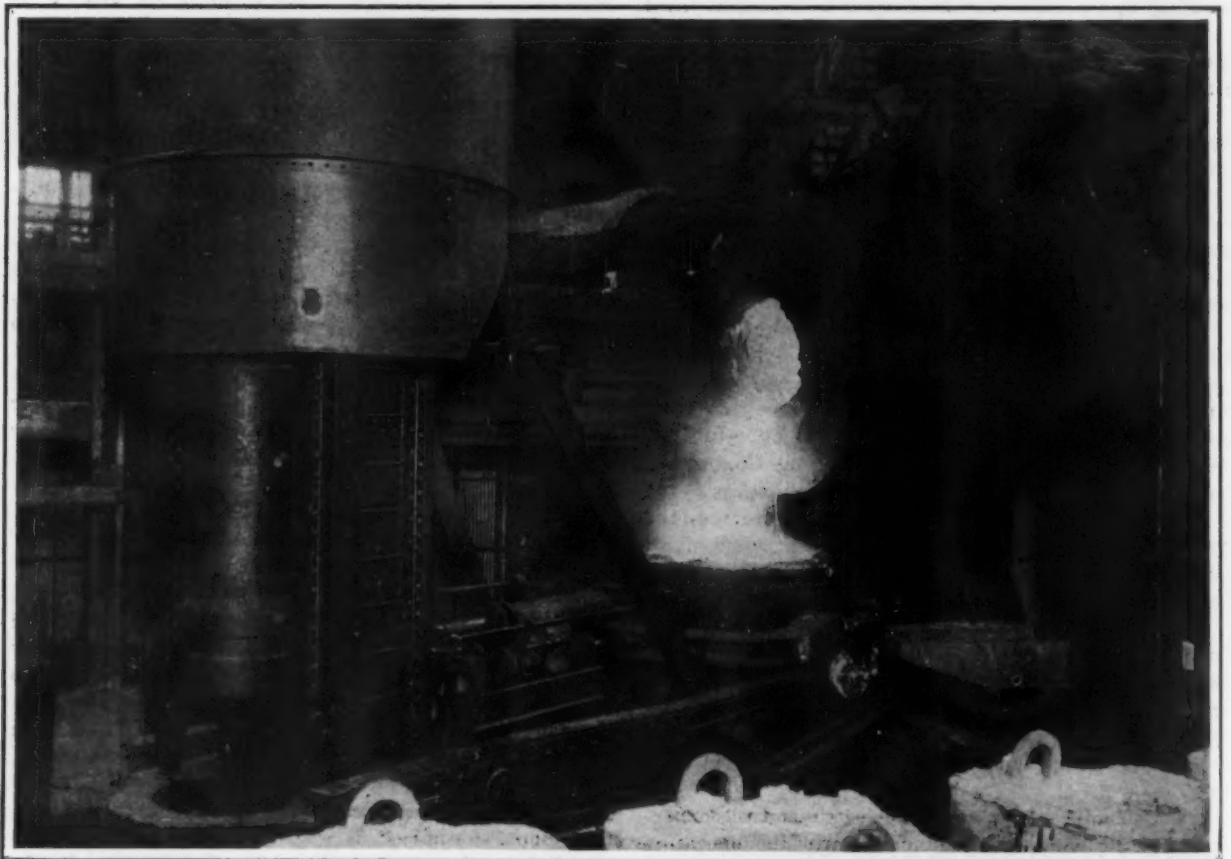
An unusual and distinctly advantageous feature of the design of the bottom house is the fact that the hot metal transfer track extends into it, and under the bottom house crane. Hence hot metal ladles in need of repair may be lifted off the track and replaced by relined ladles. The relining and drying out of ladles is done in the bottom house. For drying out, a preliminary wood fire is built in the ladle, and it is then subjected to a hot flame from tar atomized with steam, and supplied under pressure. Perhaps the most impressive feature of the Bessemer plant, visualized as a whole, is the fact that mechanical appliances have been provided for practically



Pouring from the Mixer into the Transfer Ladle Car. The latter is on a track scale and is weighed immediately after pouring. The scale levers will be seen above the ladle—out of danger. The operation of the mixer has been rendered safe by electrical and mechanical appliances; in case of accident the operator, by leaving the control platform, causes the mixer to stop automatically and then return to horizontal position

every conceivable operation. The arrangement of the various departments in relation to one another also stands out as strikingly convenient, and conducive to

maximum economy in operation, and minimum interruption of production in case of breakdown of any of the equipment. The buildings are of structural steel,



Pouring Blown Metal from the Converter into a Steel Ladle Held in Position by the Hydraulic Center Crane

which is sheathed with corrugated galvanized sheets.

Offices of the Bessemer superintendent, and well appointed toilet facilities for the employees, are housed in a two-story brick structure. Another brick building, 42 x 100 ft., contains the power house equipment. A 25,000-cu. ft. Ingersoll-Rand turbo-blower furnishes the air for each converter. Other equipment includes a 2000-kva. Westinghouse turbogenerator, and two Cameron motor-driven hydraulic rotary pumps, with space for a third. Each of these is an eight-stage pump—four stages on each side. The turbo-generator was installed as an auxiliary to the main power house, tying into the main power line, thereby serving as a protection. A 20-in. accumulator serves the hydraulic equipment.

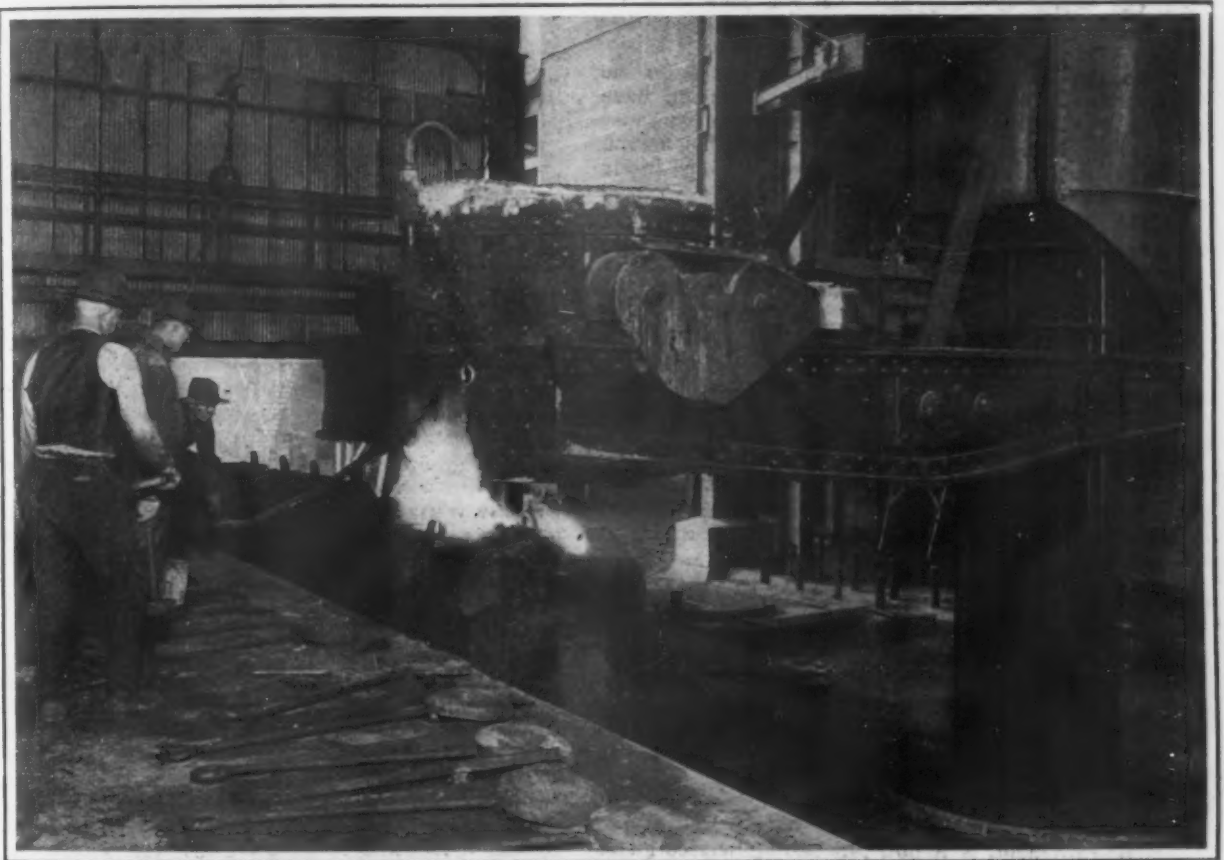
There are also three Cameron steam turbine driven boiler feed pumps and a Cochrane feed water heater. Two Cameron centrifugal pumps located in the basement draw hot water from the hot wells, which collect

As an additional precaution, they have been equipped with standard grates for coal firing.

This entire Bessemer plant was designed by the engineering staff of the company, and constructed by the company's own forces. It is expected to have a capacity of 65,000 tons of Bessemer steel per month when both the converters, provided for in the plan, are working double turn.

Carnegie Blast Furnace Operations

No. 1 furnace of the New Castle, Pa., works of the Carnegie Steel Co. was blown in Nov. 2 after being down for several months. During the suspension many improvements have been made to the furnace. Three 2-pass side combination stoves have been installed to replace five McClure 3-pass stoves which will be torn down. A Kling-Weidlein gas cleaner also is to be installed. No. 4 furnace of this group is being relined and probably will be blown in about Jan. 1. The Car-



Teeming an Ingot. This view taken from the pouring platform shows the steel ladle in position over one of the ingot molds. The ladle has been transferred from the converter to the pouring platform by the hydraulic center crane

water condensed from the steam-driven equipment, and deliver it to the feed water heater. A steam separator in the steam lines removes moisture before the steam enters the engines. In addition, each engine has its individual separator.

Steam is furnished by four 300-hp. waste-heat watertube boilers, furnished by the Casey-Hedges Co., Chattanooga, Tenn. The boilers are arranged in pairs, each pair in a boiler house, 40 x 100 ft. They are fired from the waste gases of a corresponding number of open-hearth furnaces in the adjacent plant. Each boiler is steel clad, and closed tight on all sides, to keep out air leaks, thereby conserving a maximum of the heat of the incoming gases, which are at relatively low temperature. For the latter reason, also, the heating surface of the boilers was made exceptionally large—6500 sq. ft. each. The boilers are served by a steam turbine-driven fan, insuring static pressure of 6 in. Burners have been provided, so that the boilers may operate on coke oven gas if the open-hearth furnaces are down.

negie Steel Co. also put on a furnace at its Duquesne works recently and one of the Carrie group at Rankin, Pa., will go on this week. This will make a total of 20 in blast as compared with the minimum of 13 about July 1. The distribution is three Duquesne, five Edgar Thomson, four Ohio, three New Castle, one Lucy and four Carrie furnaces.

It is announced that the Dominion Iron & Steel Co., Sydney, N. S., has put into effect a 10 per cent reduction in wages, which applies to all workers and office staff at the Sydney plant. Accompanying the notice of the wage cut was an intimation that the step, while regretted, was the only alternative to a practically complete suspension of operations.

An official of the Republic Iron & Steel Co., Youngstown, Ohio, states that an extensive engineering survey has been started with a view to possible changes in the Bessemer department and substitution of electric for steam power in a number of units.

BUYING VERSUS BEING SOLD

Cost of Selling Always Paid by Buyer—Salesman Not Altruistic

BY JOHN J. RALPH

Selling. You have seen them, that army of men on the road, with their grips, their picture books, their samples. In a prominent plant ten, twenty, thirty of them in a day, each taking his half hour or more, and sometimes decorating the waiting room for hours.

Yes, they sell you. Not a concern where they do not! Starting out with a general idea of your wants, and a specific idea of their supplies, they get through you and sell you.

Ever reflect that each time a man "sells" you, it is a black eye to your firm, even if the buy is a good one? Should he not sell you when you need it, then it is more than a black eye. It is an internal injury, and that missed sale may have cost you more than the profits you may have made on all of the other purchases of the day.

Why so, if the sale was a good buy? Simply for the reason that, if it was a good buy, you should have known it before that salesman reached you. Because you have either actually lost money through not having made the purchase earlier, or you have foregone profits you might have had.

That salesman had the "edge" on you and your entire concern. He guessed your wants, or some other salesman tipped him off. But you were asleep, and let the opportunity get by until he forced his way in.

Buying Service Most Important

As between you and the seller, it is more important for you to buy than it is for the seller to sell. Buying is your corner-stone. You must buy, and on your purchases you must build your structure. It must carry your overhead. It carries all of your labor charges. On its quality and fitness largely depends the price you must pay to dispose of the finished product.

Yet buying is not generally held in its true importance—perhaps because the level of buying is so low. Perhaps because we do not sufficiently realize that all in the plant assist in the buying, and through disorganization there is inefficiency.

Perhaps it is because we like better to see gold coming in than going out, and we grudge the sowing of the grain. Then, too, the finished unsold product in the plant is an unburied corpse. It is notorious, the proportion of the residual estate the undertaker proverbially gets.

The Cost of Selling Service

It is convenient, is it not, this selling service given you so freely by those you patronize? Ever reflect who pays for it? That crowd of men calling on you day after day, eating and sleeping and traveling at "the company's" expense, and all practically calling on the same kind of industry. Would they not make a fine crew in the factory? Yes, all of your neighbors have had the same line of visitors to-day. It took most of your time to see them, too, did it not?

You paid for them, you are paying for them, and they are not under your direction, either. You and the others pay for them because of the low level of purchasing throughout the country.

Some of that service is a justifiable expenditure. There are certain machines so complex that no printed description could tell just how they operate and what they can do. There are salesmen who are experts in their lines, who can go out into the shop, size up your problem, and tell you what you need, because that is their business, their genius, their life. About what proportion of those who call on you are of this type?

Each one of the concerns sending you a salesman has already sent you its card. Where? This magazine carries hundreds of them. There are other magazines. News of them is found in the editorial pages and in the advertising pages. Some of these advertising

pages are silent but eloquent salesmen. Others are mere announcements.

Each of these concerns, however, is ready to follow up this announcement with another silent salesman. This second salesman you can carry in your pocket, study at your leisure, file away for reference, turn over to others. The catalog seldom costs less than several hundred dollars, and sometimes runs up into thousands, just to get together the information and to put it into shape.

You send out these silent representatives yourself, and your salesmen often feel aggrieved at the small attention your catalog gets.

Ever figure how much actual cash is spent on you, to aid you in buying—traveling salesmen, advertising, catalogs? Much of it is due to the average low level of buying; to the attitude of the purchaser, that he is conferring a favor instead of embracing an opportunity.

The buyer pays for it all.

Relative Development of Buying and Selling

Some magazines are full of tales of marvelous courses which will show you how to sell, and open for you the vaults of Ali Baba; but how often do you see advertised the course that will enable you to buy? The ratio is merely an indication of the relative attention paid to the different elements of the business. The efficiency of their efforts is somewhat to be doubted.

Yet buying is the basic need. It is infinitely the more difficult. It touches every part of the plant. It is influenced by every business condition. It is an opportunity to return large dividends, and it is full of pitfalls. In average development it is far behind that of selling, and the losses due to the want of adequate buying knowledge and talent are infinitely greater.

The successful salesman is ordinarily a pretty confident sort of person. If he is diffident and retiring he does not get far. Consider his attitude.

Does he come to assist you with your problems, to grub down to find out whether this is really the best purchase you can make? Far from it. He is coming to sell you his goods. He is considering you as a psychological problem. Your needs are a lever which he uses to pry your business away from you.

He has marshalled facts and figures—not with the main idea of meeting your wants, but with the object of using them to assist his sale to you. He may no longer flatter you with suppers, wine dinners, fine cigars—although even such gross methods are not entirely dead—and they were foregone, not because of conscientious scruples but because it is no longer good business.

Just a word for the somewhat modest visitor, selected for a salesman because he knows the product and its use—sometimes even instructed not to sell unless, in his judgment, the purchaser really needs the materials or the machine. There are some such. Treat him gently and kindly, for he is not interested in playing on your moods and whims, but solely in the possibilities of helping your organization to make money through the use of his product.

Park Mathewson, vice-president of the Business Bourse International, Inc., will address the meeting of the Purchasing Agents' Association of New York, which will be held at the Builders' Exchange Club, 34 West Thirty-third Street, New York, Tuesday, Nov. 15. The meeting will be attended by the purchasing agents of many representative firms. Following the address an open discussion will be held on several problems of interest to the purchasing agent.

The McKinney Steel Co., Cleveland, will erect a sintering plant, the contract for which will probably be placed within 30 days and actual construction started early in the spring. A Dwight & Lloyd sintering machine will be installed. The plant will have a daily capacity of about 350 tons of sinter.

Experiments in Industrial Co-operation

Constructive Solutions of Employer-Employee Relations Presented at Meeting of the Academy of Political Science

NUMEROUS experiments in industrial co-operation with emphasis on what employers have done and can do in taking the initiative in this management problem were considered at the forty-first annual meeting of the Academy of Political Science, held jointly with the Industrial Relations Association of America in New York, Nov. 4 and 5. The subject of the meeting was "Constructive Experiments in Industrial Co-operation Between Employers and Employees" and, as pointed out by Sam A. Lewisohn, chairman of the committee on arrangements, and presiding officer at the opening session, it was the intention of the meeting to consider not the judicial phase of employer-employee relations but the continuous and constructive relationships, or, such problems as proper personnel administration within the plant and proper co-operation within the industry. "It is," he said, "a matter of working out the best possible adjustment between employer and employee for the year-in and year-out conduct of business."

There were five sessions, the first of which was devoted to co-operation within the plant, where the employer is the principal figure and where, as it would seem, he has the initial role of leadership. Proper team work within plants depends, the chairman pointed out, on the skill and enlightenment of the management. Charles B. Seger, chairman board of directors, United States Rubber Co., speaking on "Employee Representation and Personnel Work in a Large Scale Organization With Many Plants" emphasized the establishment of mutual confidence as the fundamental factor and advocated a point of contact through some form of employee representation or representative body—such as shop councils representing the employees and the local management representing the employers. Regarding outside interference Mr. Seger said that "if both parties will make a proper effort along lines of human relationship based on truth and honesty of purpose, there will not be any friction that cannot be cleared up between individuals or groups without any outside help."

After reviewing the personnel problems peculiar to a public utilities organization, E. K. Hall, vice-president American Telephone & Telegraph Co., in his paper on "Executive Leadership and Personnel Work in Public Service Corporations," stated that they were trying to give their people a real status in the industry, trying to foster in each employee a real interest in his job and in his concern. This is being done he said by giving them a financial interest in the company as employee stockholders, and by giving them all the information they can absorb regarding the policy of the business and its relation to the public.

He said that organization charts were used extensively to the end that employees may realize their relationship to others. "We try to make them feel," he said, "that there is one responsibility that all have in common and that is operation for and devotion to the public service."

Securing Leadership Through Confidence

Charles R. Hook, vice-president American Rolling Mill Co., Middletown, Ohio, was not able to be present, as scheduled, and a paper, "Winning the Confidence of Employees by Taking the Mystery Out of Business," was read by S. R. Rectanus, director of employment of the same company. It was pointed out that "mystery comes as the result of a lack of understanding and causes distrust. Just as we are taking the mystery out of our processes by investigation and replacing secret formulas by the standard practice in-

struction, so we hope that management will secure and hold its leadership through confidence based on understanding instead of through fear inspired by mystery." "We depend," he continued, "on experts for advice, organize committees to plan and recommend, but depend on individuals to execute, to do the job. Any plan which takes the responsibility for the execution of plans and policies away from the individuals who make up the management, is bound to result in inefficiency and the discrediting of the executives. We have endeavored to secure respect for the management and have tried to create among the workers a desire and willingness to have the work of management done by those who are best fitted to manage."

The organization and functions of the advisory-committee plan, in operation since 1904, was reviewed. This committee, it was stated, is called in by the management for advice and consultation and they in turn present matters of mutual interest to the management. The functions of the general advisory committee were given as follows: To advise with and learn the policies of the general management; to convey to the employees an understanding of these policies and to reflect the sentiment of the employees on such matters as may be of help to the general management. The committees have no administrative, executive or legislative functions. Meetings are held once a month following a meeting of the foremen with the management, or sometimes jointly with the foremen. At these meetings "we state, explain and discuss business policies, market conditions, plans for the future, successes or disappointments of the past. Our various department heads tell what their jobs are, what they do, how their part of the business is carried on." Instances showing the beneficial results of the plan were cited.

Reducing Unemployment

A paper on insurance against unemployment in a plant was presented by Harold A. Hatch, of Deering, Milliken & Co., New York, and president of Dutchess Bleachery & Abbeville Cotton Mills Co. He classified the motives of those demanding a cure for unemployment as being based on fear that unemployment will lead to discontent, on economy, and on spiritual considerations. Of the latter he said in part, "we may consider the question of unemployment as a spiritual one, as a call to serve our fellow men. This viewpoint is, I believe, in harmony with American tradition. With this viewpoint we can, I believe, have full confidence that sooner or later we will solve the problem." He then outlined the effect of such insurance in regularizing casual, seasonal and cyclic unemployment. He cited the experience of his companies in the matter and as to the cost of this insurance said in part: "At one plant since Jan. 1, 1920, the cost has been 4.516 per cent of the pay roll; at the other plant, for the same period, 1.539 per cent of the payroll." Both of these he pointed out may be regarded as maxima, on account of the general depression in the textile trade. As to the benefits accruing, he said: "I believe that as far as the companies themselves are concerned, even if they should pay the entire unemployment insurance, there would be no financial loss not compensated for by the increased efficiency of their employees."

Among those taking part in the discussion were Owen D. Young, treasurer, General Electric Co., who said that he was greatly impressed with the recognition of the necessity of co-operation as expressed in the paper of Mr. Hook of the American Rolling Mill Co. On the subject of unemployment he said that the problem was "bristling with difficulties" and that in the solution we must not go so far as to be unable to obtain

labor under conditions that will permit us to compete in markets of the world. "I hope," he said, "that we will find a remedy before long, but not in State action."

Public Interest in Strikes

A dinner meeting with "Good Will and Co-operation in Industry" as the topic was presided over by Secretary of Commerce Hoover. The theme of Mr. Hoover's introductory address was the primary interest of the public in certain classes of strikes and industrial controversies. He divided industries into two categories one of which included the transportation and the coal industry, where continuous operation is vital to the life and safety of the community, and where there is no alternative to some substitute service; and the other category including those industries from the continuous operation of which there is alternative supply without imperiling the life of the community. Of the latter he said that the public takes but a secondary interest in the dispute arising therein, but of the first group the public is impatient to find a solution.

"As a result of these things," said Mr. Hoover, "we have seen the gradual extension of the arm of the public to these disputes through both administrative and legislative action. We also witness this extension of public interest bitterly resented both by the employers and employees. The primary instinct of the public is self-preservation first and last, and where 1 or 2 per cent of the whole population may jeopardize the comfort and security of the other 98 per cent I do not believe that they can be restrained from exerting a commanding voice however much it may be resented by either side.

"The thing that must concern us all is that the entrance of the third party into these disputes will be in such form that it does not increase the ill will, that it shall be in such form as will secure justice, and that will preserve the very foundations of initiative and that type of American individualism upon which our whole social system is based, and that it will recognize the fundamental necessity to build up good will itself."

Other speakers at the dinner meeting included James J. Davis, Secretary of Labor, and Hugh Frayne, general organizer, American Federation of Labor.

The closing session of the meeting considered the question of what the State and other public agencies can do toward assisting and teaching constructive methods of handling personnel relations. It was suggested that the curricula of technical schools and colleges, from which personnel managers are recruited, be changed to include adequate courses of personnel relations. This question was taken up by Dexter S. Kimball, dean of the College of Engineering, Cornell University, Ithaca, N. Y., in his paper on "What Are Universities and Technical Schools Doing to Train Their Undergraduates in Industrial Relations."

Opportunity of the Chamber of Commerce

An interesting paper was read by Alexander C. Brown, president Brown Hoisting Machine Co., Cleveland, and president Cleveland Chamber of Commerce, on what the Chamber of Commerce can do in promoting better industrial relations in a community. Characterizing industrial discontent as a weed whose seeds scatter, Mr. Brown said: "It has long been a misconception that the square-deal policy of industrial relations in one's own plant is sufficient insurance against discontent, unrest and labor troubles in that plant. Recognition is now being given, all too tardily, to the danger lurking in an unsound labor policy in one's neighbor's plant." After pointing out the responsibility of the public in the matter of the settlement of labor disputes and the part that industrial relations plays in influencing economic conditions, he asked "who is to take the initiative in crystalizing public opinion as to the underlying principles of industrial relations that must be established in the public interest as the sole protection against these perils" of industrial extremes? Part of the responsibility for

constructive leadership, he said, is broadly speaking, a federal and State function.

But effectiveness can only be attained by community action, he continued. "The very structure of our Government and the growth of our nation have been founded upon the development of the thought and action of the separate communities expressing themselves from within, rather than a centralized and paternalistic control exerted upon them by federal or State government. If then the responsibility for this leadership is primarily a community matter, where can it more logically fall then upon the chief civic and commercial organization of each community—the Chamber of Commerce?

Mr. Brown outlined the formulated labor policy or declaration of principles of the Cleveland Chamber of Commerce, made public in April, 1920, dealing with nine subjects, summarizing the principles underlying each. Research into current labor problems, was the next step advocated, with a view to furnishing the public with impartial information relative to them, and to direct attention, in specific terms, to the application of the adopted principles to these actual cases. Mr. Brown outlined various activities of the Cleveland Chamber of Commerce in the matter of promoting better industrial relations and in conclusion said, "Endless patience, unprejudiced judgment, persistent determination and consistent policy are prerequisites to success and must be supported by the unwavering recognition that the public interest is paramount."

Wages for Mechanics in New York State

While average wages per factory employee in New York State in August, 1921, were 102 per cent above the figure for June, 1914, wages of those engaged under the group "metals, machinery and conveyances" were only 87 per cent above 1914, according to figures of the State Department of Labor. Those engaged in pig iron production and in rolling mills were getting but 62 per cent above 1914; while those building cars or locomotives, or employed in railroad repair shops, were being paid 118 per cent more than in 1914. Wages of structural and architectural iron workers were 95 per cent "up"; builders of automobiles, carriages and airplanes were receiving 82 per cent more; ship and boat builders, 66 per cent, and makers of machinery, including electrical apparatus, had pay envelopes averaging 76 per cent larger than in 1914.

American Foundrymen's Association Convention

CHICAGO, Nov. 7.—The American Foundrymen's Association will hold its convention and exhibit at Cleveland the week of April 24. The announcement has been sent out by C. E. Hoyt, secretary of the association.

The waterworks at Hopewell, Va., which during the war supplied the munitions plant of E. I. du Pont de Nemours & Co. and adjacent villages, has been sold by the Du Pont Chemical Co. to the Industrial Service Corporation of Virginia. The transfer includes electric and steam pumping stations, filtration plant, boiler plant, transmission lines, etc. The plant has a capacity of approximately 30,000,000 gallons per day. J. F. Muhlig is the general manager and operating head of the new corporation, with headquarters at Hopewell. Twenty firms have located at Hopewell.

James A. Campbell, president Youngstown Sheet & Tube Co., Youngstown, O., was a speaker at the 111th semi-annual meeting of the National Cotton Manufacturers' Association at the Copley-Plaza hotel, Boston, on the evening of Oct. 3. Mr. Campbell confined his remarks largely to the transportation situation. He is in favor of repealing the Adamson law, and a modification of the Esch-Cummins act to permit abolition of the railroad labor board or the transfer of its functions to the Interstate Commerce Commission.

Iron Industry's Message Favors Peace

Leaders Give Their Hearty Support to
President Harding in His Effort to Limit
Armaments—Earnest Denunciation of War

NINETEEN HUNDRED AND SEVENTEEN was described by THE IRON AGE as the year in which American iron and steel and machinery, along with every human and material resource of the nation, were summoned to a supreme test of ability of American institutions to endure. That year the American steel industry produced nearly three tons to every two tons in the rest of the world. In January, 1919, it was recorded that with "force to the utmost, force without stint or limit" as the nation's war cry in 1918, American steel blasted a way through and saved the world. The men of the iron trade did not hesitate then as to what their duty was. They gave not only of their wealth and their energy, but many of them their health and life itself, even if all were not called to the battle fields of France.

Now, as the International Conference on Limitation of Armament is about to meet at Washington, the great industry stands as firmly behind President Harding in his efforts to promote peace as it stood behind President Wilson in the days of the war. It is, of course, impossible to obtain complete expression by the leaders of the industry, but in response to requests from THE IRON AGE, a few have

given briefly their views as to the Washington conference. They show unmistakably that the sentiment of the trade is opposed to war, for both humane and economic reasons. None fails to realize that the fundamental question is one of morals and none doubts that limitation of armaments is demanded to promote the welfare of the business of the country. The replies herewith printed are to be presented at the conference, probably at its first meeting next Saturday.

Judge E. H. Gary, chairman United States Steel Corporation, has been working in the seclusion of his Long Island home for several days and was not accessible to obtain a statement as to his position regarding the conference. Last December, when asked by the New York World "Should not the United States take the lead in a virile crusade for an immediate world-wide disarmament?" said:

"Upon the assumption that all other countries connected with the high seas would agree to a limitation concerning armament, I should like to see the United States participate on a just and reasonable basis. I am sorry I cannot more specifically answer your question."

World Police Force Needed

By E. W. Mudge

E. W. Mudge & Co., Pittsburgh

We believe that the iron and steel industry stands solidly back of President Harding in his disarmament efforts. We feel, however, that it is impossible to keep two school boys from fighting. The same will happen with nations. If the world would agree to disarmament with the exception of a proper police force to keep order throughout the world by a reasonable sized Army and Navy under the control of the Governments of Great Britain or the United States or both, the expense to be prorated among the nations of the world on an equitable basis, we believe the problem would be solved.

Great Economic Advantage

By W. S. Pilling

Pilling & Co., Philadelphia

While the reduction or restriction of armament would result in an apparent decrease of demand for special and standard grades of iron and steel and thus perhaps temporarily seem to be a disadvantage, the net result in the long run would be a great economic advantage. Wealth, to be substantial or of real value, must be productive; arms and armament are destructive and add nothing to the real wealth of a country. It, therefore, follows that if our resources and labor can be diverted from destructive to constructive investment, the economic result must be beneficial. Aside from this, however, the humanitarian benefit is so apparent

that no argument is necessary. Whatever prevents war, or reduces its destructiveness, is of value.

Armaments must necessarily be relative. It, therefore, follows that from either offensive or defensive standpoints, if restrictions of all nations are fair and equitable, each will occupy as favorable a position, relatively, as if the armaments were continually increased or held parallel. The reduction would also release valuable human material for useful purposes, and in the long run this must be beneficial to the whole world.

What Disarmament Means to Industry

By George M. Verity

President, American Rolling Mill Co., Middletown, Ohio

A proportionate reduction in the armies and navies of the world to a point that would salvage at least 50 per cent of the enormous sums now expended for such purposes would not only stop that terrific strain on the material resources of the world, but it would set free a great constructive force in money and in men that could almost remake the world in a few generations. There is an old saying that a dollar saved is equal to two dollars earned. Unquestionably, the enormous amount saved would be more than quadrupled in its constructive value to the world, as the constructive ability of all those engaged in the making of armament could be diverted to the pursuits of peace.

Unlimited national development could be enjoyed in material, educational and spiritual things, and the sum of it all would be beyond human computation.

The commerce and industry of the world will

prosper enormously when a condition of human happiness and stability can be enjoyed.

The higher the state of civilization, the greater are the combined wants of the peoples of the earth.

If there is such a thing as Christian civilization, is it not time that the great civilized nations of the world find a way to pool their moral and material strength in the attainment of real peace on earth and good-will toward all?

If it can be done at all, it can be done now as well as in the future.

If civilization, as we know it, is to be preserved, substantial progress toward world peace must certainly be made. The spirit of the ten million lives sacrificed in the last world war and of all those who were victims of it demand it.

A condition that will assure permanent peace among the major nations of the world, with resultant world stability, will be worth to industry a thousand times more than any possible benefit that can arise through the building of armament.

Conference Inspires Hope

By Samuel Mather

Pickands, Mather & Co., Cleveland

I am heartily in accord with President Harding's effort to limit armament. A conference attended by the representatives of the leading nations of the world to discuss a problem common to all irrespective of their national conditions is an inspiring thing in itself and tends towards the belief that in the not too distant future nations may be relieved to some extent at least of the great problem of self protection and turn the intelligence, the moral effort and the capital of their citizens into channels more productive of ultimate good to mankind.

I am proud to stand with others of the iron and steel industry heartily behind the President in this most worthy cause and wish him all success.

Most Important Question Before the World

By Willis L. King

Vice-President, Jones & Laughlin Steel Co., Pittsburgh

The limitation of armament is unquestionably the most important and far reaching question before the world to-day. The well being and happiness of present and future generations depend upon a favorable outcome. It will determine the moral, financial and economic future of the world and must not fail of its benign purpose. That our country has taken the initiative and will act the part of big brother in the deliberations is not only extremely gratifying but in my opinion forecasts early relief from the burdens of taxation and a prompt resumption of trade among the nations of the world.

World Wide Effect of Wise Policy

By E. A. S. Clarke

President, Consolidated Steel Corporation, New York

I stand heartily with President Harding in his effort to limit armament. I believe that such limitation, with the consequent reduction of taxation, would have a favorable effect on industry and trade, and should be a great help toward the restoration of prosperity and normal conditions. In addition to the direct effect on our domestic situation, the stimulation of buying power throughout the world will react favorably to us, since the full prosperity of the United States is so largely dependent upon

the export of a substantial part of our manufactured products.

Heavy Burdens Imposed by War Should Be Lifted

By Clayton Mark

Chairman, Steel & Tube Co. of America

The economic necessity of relieving the people of the leading nations of the heavy burdens of taxation now imposed to provide means for wars and paying obligations for past wars is apparent to every one, for these taxes are paralyzing effort and absorbing earnings and thus checking the development and progress of the human race. If the energies now devoted to providing means for prosecuting wars were used to develop the world's natural resources by expansion of trade and transportation facilities and by improved education, the result would be better homes, higher standards of living, contentment, happiness, prosperity. I am sure the thinking people of all countries, including those in the iron and steel industry in this country, are unanimous in wishing whole-heartedly for the success of the conference called by President Harding.

Feasible for All to Join

By F. B. Richards

M. A. Hanna & Co., Cleveland

We are fully in accord with President Harding's views on the limitation of armaments and believe that the general adoption of his ideas will be the greatest step toward establishing international peace and prosperity and one of the essential steps to be taken in re-establishing prosperity in our own country. It is the one great economy in which it is feasible for all Governments to join and bring about quick results.

Steel Industry Now Is and Always Has Been for Progress

By Joseph G. Butler, Jr.

Vice-President, Brier Hill Steel Co., Youngstown, Ohio

Aggressive war is a relic of barbarism. It is a crime against humanity and civilization. It is rarely necessary and should never be unavoidable among civilized nations. Usually it is brought about by a sense of superior power on the part of the aggressor. The most potent cause of war is efficient machinery for carrying it on.

Reduction of armaments by the great nations of the earth would go farther to prevent war than any other method yet suggested. It would remove from the backs of nations the tremendous burden of military and naval establishments, eliminate the greatest cause of waste humanity has known, and promote peace and good-will among all the peoples of the earth.

The American iron and steel industry has always stood for progress. Its leaders have been in the forefront of every movement for advancement of the moral, political and physical welfare of this country. No practical effort toward greater liberty and prosperity has ever failed to receive its earnest and effective support. It now stands solidly behind President Harding in his desire to bring about agreement among the great powers for the limitation of their armaments to what may be necessary to guarantee internal peace and stability of government.

Generalities Would Be Disappointing

By John A. Topping

Chairman, Republic Iron & Steel Co., New York

Sentiment as I sense it in iron and steel circles is in accord with President Harding's plans for peace and in sympathy with the object of the limited armament conference. It is generally recognized that the conference has ahead of it both intricate and delicate questions to settle, but "where there is a will there must be a way," and it is hoped that a practical way will be found to establish a clear understanding, supported by substantial guarantees, for the maintenance of peace.

The business world would be disappointed with any settlement based on generalities and the economic reconstruction of the world would suffer in consequence, but with the peace of the world established on a firm base, supported by definite guarantees, reconstruction measures throughout the world would be quickened and normal business conditions hastened.

Will Make Momentous Decision

By Clarence H. Howard

President, Commonwealth Steel Co., St. Louis

At the request of President Harding, the nations of the world are assembling their representatives to discuss the limiting of armament. This most important meeting is to decide whether civilization, peace and prosperity are to continue or if we are to be governed by war.

It is the duty of the iron and steel interests to support our President. A right disarmament plan will relieve burdened nations of unnecessary taxation, will stimulate business and bring to the people of all nations a feeling of love and confidence in each other that will be of untold value to all.

War a Curse to Business and Humanity

By A. F. Huston

President, Lukens Steel Co., Coatesville, Pa.

We are heartily in favor of as much disarmament as possible and are ready to stand solidly with President Harding in any effort to bring this about. It undoubtedly would be of vast benefit to business, as the large items in our annual budget are for the Army and Navy departments. A recent visitor to Germany reports they are able to show their present prosperity because of not having to spend money for war purposes at present.

I am even stronger for disarmament for humanitarian reasons, believing that war is a curse and should be avoided.

Humanity's Universal Wish

By C. D. Dyer

Vice-President, W. P. Snyder & Co., Pittsburgh

Humanity never had a wish so universal as for armament limitation. The best interest of the world's business is typified in the ancient symbol of the sword and the plowshare and lies in the hope that the one activity fall into disuse to allow the widest development and expansion of the other.

If the coming conference reduces in any degree the 93 per cent of our national resources now devoted to war, every point gained means capital re-

stored to the people for productive uses. It looks as if the conference is the place to collect any reward due the race from the world war.

Limitation of Armaments Is a Moral Question

By J. F. Welborn

President, Colorado Fuel & Iron Co., Denver

The question of the limitation of armaments is moral. It entirely outweighs all incidental economic questions, but prosperity depends upon the industries of peace, not of war. Naturally a successful solution of the problem to be considered by the coming conference at Washington should result ultimately in greater industrial activity when funds heretofore devoted to war or preparation for war are turned into constructive channels of trade.

Greatest Opportunity Since Time of Christ

By William A. Rogers

Rogers Brown & Co., Buffalo

The approaching conference for limitation of armaments offers an opportunity to accomplish the greatest good for mankind since the time of Christ.

War except in defense against greed and oppression is the greatest crime which civilized man commits and is a colossal folly when viewed as a means of settling disputes between nations.

There is an impression in some quarters that the iron and steel industry profits by war. That I believe to be a fallacy and that when the cycle is completed by readjustment to normal conditions, the industry has suffered loss.

The greatest prosperity comes through employment in the arts of peace.

History to Be Written—What Kind?

WASHINGTON, Nov. 8.—Washington is on the verge of writing history, perhaps a great chapter. Gathered in the Capitol are people from the four quarters of the globe who will constitute the actors in a world drama. What will be the outcome—weal or woe? The answer can be hazarded and that only, for never before in man's time has there been a comparable conference of the nations of the world called to consider the limitation of armaments? Is it being approached with suspicion, distrust, and cunning design by some? Or are all of the countries entering it with high hope and sincerity? Is it Utopian, and impossible of accomplishment? Or will a weary world demand that burdens and sufferings attendant upon war be lifted?

The issues are so difficult, intricate and unprecedented that they are staggering. They are both emotional and thoroughly practical. There are many minds in all the nations of the earth which think that civilization has barely escaped a breakdown and that a catastrophe can be avoided only by a sincere agreement to call a halt on armament. But it is obvious that no country will enter into a program that it considers endangering to its own welfare. Where the line can be drawn is a momentous problem, complicated and confusing.

As an economic matter reaching into finance, commerce, and industry, no question can exist that war is a decidedly eruptive force. It means a loss to all. The sane business man, no matter what his line, is as strongly opposed to war itself as the most confirmed pacifist can possibly be, both from a point of humanity

and of sound economics. The difference is one would, and would not, have "peace at any price." The result of the world war with its over-expansion of the iron and steel and other industries, demoralized international exchange, depressed markets, and loss of purchasing power, interruption of work of constructive

science, and education, drain on profits, heavy taxation on the people, is a complete answer as to the desirability of a frank international agreement to limit armaments and prevent war.

What it may be possible to evolve in this direction out of the world conference remains to be seen.

Conference on Industrial Cost Accounting

Contributions to Cost Questions Made at Pittsburgh at
Second Annual Meeting of Industrial Cost Association

GETTING additional light upon several subjects which were under discussion at its first national conference, held at East Aurora, N. Y., last May, the Industrial Cost Association also considered a number of papers bearing directly upon its aims and objects at the second national conference, which was held at the William Penn Hotel, Pittsburgh, Nov. 2, 3 and 4. It was evident from the opening address of President Horace S. Peck, comptroller S-K-F Industries, Inc., New York, that the association had passed through a trying year, due to the industrial depression, which forced economies that made difficult accretions to membership, and this in turn created financial conditions which made impossible the full attainment of the plans laid down at organization a year ago and subsequently at the East Aurora conference. The fact that the organization had survived the trials, however, created a feeling of optimism regarding the future, and this feeling found reflection in the earnest discussions of the several papers presented.

The organization seemingly has found its feet and the plans presented by President Peck indicate a more coherent and unified purpose than was possible to attain in the organization's first year of existence. The national body in the future will propose the subjects for discussion of the individual sections, and it is hoped that this method will result in securing a country-wide view of a given subject. Hitherto, the individual section has chosen its own topics and the results of the papers and discussions have been almost local.

Different sections, now located in Buffalo, Chicago, Detroit, New York and Pittsburgh, will be asked to discuss simultaneously and report their findings on several papers soon to be issued by the national officers. Among them are: "The Balance Sheet from the Banker's Standpoint," by C. W. Tracy, Irving National Bank, New York; "The Opportunity of the Cost Accountant to Do Analytical Work for the Executive," by Robert E. Belt, secretary National Malleable Castings Association, and "Depreciation," by C. A. Porter, Hardinge Co., heavy machinery, New York. There was a registration total at the conference of 150, and the conference also was featured by an exhibit by a number of companies manufacturing mechanical office and accounting appliances.

How Accounting Should Help Sales Work

S. B. Taylor, general sales manager S-K-F Industries, Inc., New York, presented the first paper of the afternoon session. "What the Sales Manager Should Have from the Accounting Department" was his subject, and he said in part:

"The constructive value of the comptroller's department in its relation to the making of sales has only begun to receive the appreciation due it. Actual working contact between the accounting and sales departments starts with costs. That these figures should be available, dependable and of easy analysis is of prime interest in merchandising. Cost records should immediately show 'closed order' costs on finished units by dates of completion, the quantity of units involved and a segregation of material, labor and burden, as well as the per cent cost of list if the product is so sold. Supplementary to this, current information on 'in process' material, quantities involved, as well as the stage of manufacturing process, should be supplied. With the

above facts in hand, quotations on present or future requirements of the buyer become both safer as to profits and surer as to delivery promises.

"There are certain pictures of the sales result which are of great value and which the accounting department should be equipped to supply as part of its routine function. For example:

"(a) Daily memorandum showing the number and value of the orders received, together with the number of units covered and from what plants ordered.

"(b) The above detailed by customer, with quantities and type of purchases.

"(c) Weekly reports giving all sales, intercompany and to the public, all returns and allowances for the period to date, segregated by plants, this to embody comparative figures for similar period for the preceding month and to date; the value of new business accepted and the status of unfilled orders forming a part of this report.

"(d) Monthly, a report showing gross profits for the month completed and the period to date, with comparisons for the same period of the preceding year.

"Figures of finished stock inventory as well as 'in process' items and raw stocks by months showing increases or decreases, should be available for ready reference. The proper allocation through coding of sales by territory and industry, assuming distribution to be varied, is an important responsibility for the comptroller's department. Correctly done, it forms a record from which the sales executive may learn much as to the ability of fields to absorb product and the desirability of such a field from the standpoint of profit; to note improvement or retardation, as it occurs, also to judge more fairly if various territories in which there is a common field for sales are bearing their respective part of the burden.

"The accounting department should provide where branch offices are maintained complete records by months of the activities of such offices for use of the sales department. Such tabulation should include the amount of sales, salesmen's salaries and commissions paid; expenses of travel; expenses of office; per cent commission and salaries on sales; per cent travel expense on sales; per cent total expense on sales. For reference purposes both as applied to the individual offices or as a group—if these be one—such figures are of high value."

Making Prices an Art, Not a Science

Jay Chapin, assistant secretary, James H. Mathews & Co., Pittsburgh, who led the discussion of Mr. Taylor's paper, declared that the making of sales prices was an art and not a science, while accounting was an exact science. The sales manager must know the conditions in his own company, his own business and his own factory as well as the efficiency of his factory in the formulating of prices which must meet the market. In addition he must be equipped with experience and facts and the fact must be provided by the accounting department. Co-operation between the sales and accounting departments was much simpler in the small or moderate-sized company than in the large ones, which often were highly departmentized.

E. C. Grimley, Victor Talking Machine Co., who spoke on "Inventories: Methods of Taking; Perpetual

versus Annual; Cost of Market," strongly advocated the perpetual as against the annual taking of inventories on the ground that the annual inventory could not be taken without a plant shutdown and that this was costly in normal times. He also favored the use of average costs in inventories for tax purposes, although citing the latest treasury ruling that the cost or market price, whichever was lower, was to be used in such cases. Discussion disclosed that in the compilation of the inventory the figures must be consistently one or the other and that the two methods could not be applied in an individual statement. No definite conclusion was reached as to whether it was cheaper to keep a perpetual inventory or shut down the plant for a time for an annual inventory; strong support was given to both views of the question.

Plant Idleness a Profit and Loss Charge

At the evening session on Nov. 2, F. S. Willett, comptroller Dodge Mfg. Co., detailed the responsibilities of the comptroller or accounting department in times of depression and T. W. Dinlocker, assistant comptroller S-K-F Industries, talked on the relation of idleness to industry, in which he declared that strikes in the last analysis are based on wage disputes. He advocated a sound wage policy, the encouragement of employees, provisions for advancement and mutual understandings as means to prevent idleness produced by strikes, which, he asserted, usually added to costs. Touching upon the question of whether idle plants should be charged to costs, the decision of the committee of the association having this item in charge has decided that it should be charged to profit and loss.

The morning session of Nov. 3 was given over largely to a paper by H. S. Breitenstein's, comptroller's department, Pittsburgh, who detailed the methods of compiling a municipal budget. Subsequent discussion developed that budgeting in the plant and office was not feasible except in a limited way where receipts and disbursements were known quantities.

Safety work and its value was discussed in papers by J. B. Ayres and William Hogg, both of the National Tube Co., in the afternoon session of Nov. 3. In the evening, at the banquet, Clifford B. Connelley, state commissioner of labor and industry, spoke in place of Newcomb Carlton, president of the Western Union Telegraph Co., who was unable to be present. Mr. Connelley devoted his talk to women in industry and reviewed the recent industrial conference in Harrisburg. Sanford Robinson, New York, the other speaker at the dinner, urged in a taxation talk, the repeal of the income and excess profit tax on the ground that it not only was burdensome, but also unjustifiable and would make securities now tax free, taxable.

At the closing session on the morning of Nov. 4, J. N. Howell, supervisor of costs, General Electric Co., Schenectady, N. Y., warned against the introduction of too many theories in a cost system, saying that a good many seemingly perfect systems had gone into the discard because they had been burdened by too many unnecessary trimmings.

Labor conditions in Cleveland show little change, according to the monthly report of the labor relations committee of the Cleveland Chamber of Commerce. The reports from industries employing over 100 men show a total of 66,797 employed Oct. 31 as compared with 68,119 on Sept. 30, or a decline of 1.9 per cent. Plants engaged in the manufacture of steel and their products employed 27,565 Oct. 31, as compared with 27,258 on Sept. 30, or a gain of 1.1 per cent. Automobile and accessory manufacturers had 7248 employees Oct. 1, as compared with 7773 on Sept. 30, a loss of 2.5 per cent.

Specifications and contract forms are on file in the New York office of the Bureau of Foreign and Domestic Commerce, covering the boiler plant for the new Vereeniging main pumping station at Johannesburg, South Africa, where bids will be opened on Dec. 22. The material includes three boilers with superheaters, stokers, induced draft apparatus, feed pumps, steam and feed water meters with all accessories to evaporate 8000 lb. of water per hour into steam at 200 lb. pressure, and temperature at 600 deg. Fahr.

TRUMBULL COMPANY ACTIVE

Partial Resumption of its Plant—Sheet Mill Operations Increased

YOUNGSTOWN, OHIO, Nov. 8.—Steel plant operations in the Mahoning Valley are beginning to ebb, though producers attach no special significance to the current decline, regarding it as one of the inevitable movements in the trend toward normalcy.

The most important change, from an operating standpoint, is the partial resumption of the Liberty tin plate works at Leavittsburg, Ohio, of the Trumbull Steel Co. Officials state the works will be operated for an indefinite period. Eight mills started this week.

The Carnegie Steel Co. is operating with nearly full bar mill schedules, four of six blast furnaces at the Ohio works, Bessemer department and 12 open hearths.

Eleven of 17 tube mills are under power, a decline of one from the previous week. The Youngstown Sheet & Tube Co. has seven pipe furnaces fired and the Republic Iron & Steel Co. four.

The Trumbull company presents the most promising tin mill schedule this year, with 27 active units, including 19 at its Trumbull works in Warren.

Sheet mill operations are enlarged, with 80 of 113 units under power as follows: Sheet & Tube company, 15; Republic company, 12; Brier Hill Steel Co., 18; Sharon Steel Hoop Co., four starting Wednesday morning; Trumbull Steel Co., 13; Newton Steel Co., 10, and Falcon Steel Co., eight. Sheet mill plant of the Mahoning Valley Steel Co. will continue idle.

Thirty-three of 51 independent open-hearth furnaces are charged.

Fabricating interests generally continue on a 60 per cent basis.

Industrial conditions at New Castle, Pa., are now better than at any time in the past eight months, with the blowing in of Rosena blast furnace by the Carnegie Steel Co. Three of the four furnaces in the Carnegie company's New Castle group are now on the active list. Operations in the steel department will be enlarged from 50 to 75 per cent shortly.

Plant Operations

The Mason Tire & Rubber Co., Akron, Ohio, has resumed full-time production at its plant, under three-shift operation, with production totaling about 11,000 tires a week.

The Tyler Tube & Pipe Co., Washington, Pa., has resumed production at its local plant, giving employment to about 150 men. This number will be increased gradually to a working force of about 600 operatives.

The American Wire Fabrics Co., Mount Wolf, Pa., has placed additional machinery in service at its plant and is now operating on a full time, night and day schedule.

The Phoenix Iron Co., Phoenixville, Pa., has closed all departments at its local plant for an indefinite period. Shop No. 7 is still being operated on a curtailed schedule.

The Reading Iron Co., Reading, Pa., has resumed production at its puddle mill on North Ninth Street, and is planning for the early operation of the 14-in. rolling mill at the same works. The Keystone blast furnace of the company was blown in on Oct. 31. The company's furnace at Emaus, Pa., is being made ready for operation, but no announcement as to date of resumption has been made.

The Canonsburg Steel & Iron Co., Canonsburg, Pa., has arranged for the immediate resumption of operations at its plant, following an adjustment in wages with employees. About 400 operatives will be employed. The plant has been closed since last spring.

The Progressive Mfg. Co., Torrington, Conn., screws and bolts, heretofore operating on a four-day weekly schedule, has gone on a five-day week.

The Whitney Blake Wire Co., Hamden, Conn., is operating with a day force working 49 hours per week, and a night shift, 50 hours.

Gray Iron Castings from Electric Furnace

Displacing the Cupola—Present Electric Practice and Some of the Advantages Over the Older Method—Comparative Cost

— BY THOMAS ROBSON HAY —

ONE of the significant industrial developments of the Great War has been the greatly increased usage of the electric furnace for producing high-grade steels requiring precision in analysis and physical properties of surpassing excellence. When the electric furnace is spoken of one usually thinks of it as a substitute for the crucible, the converter, or the open-hearth furnace in the manufacture of high-grade steels. And yet the production of gray iron, to mention only one other application, is one to which the electric furnace is peculiarly adapted both because of its design and its operating characteristics.

In the past the cupola has been the only satisfactory apparatus for producing gray iron and, as initially with the steel making industry, the gray iron foundryman reluctantly and unwillingly turns his back on an old and tried method to take up one that is new and strange. The reluctance in taking up and utilizing this new means of gray iron production is due largely to the low first cost of the cupola and low melting costs per heat rather than per ton of metal in the ladle. It is also due to the familiarity of the foundryman with the cupola and its operation, and furthermore to the fact that the demand for a higher grade of gray iron castings is a relatively recent development.

Under ordinary conditions the conversion cost of steel in the electric furnace is somewhat higher than the cupola-converter or open-hearth costs. The savings effected are due to the difference in the costs of materials charged into the electric furnace as compared with the other types mentioned. By the term conversion cost is meant the charges for labor, refractories and fuel. This will include all charges for labor and material, with the exception of that material which goes into the furnace in the shape of the raw material and comes out as iron or steel.

Electric Furnace Replacing Cupola

The electric furnace is steadily replacing the cupola, or supplementing it, in the production of gray iron chiefly, first, because of a demand for a much superior grade of output than the cupola is capable of producing and, second, because of the excessively high cost and uncertainty of supply of the ordinary grades of foundry pig. Experience has proved that, where reasonable rates for electric power prevail, say 2c. to 2½c. per kw. hr., it is possible and economically practicable to produce gray iron, ton for ton in the ladle, more cheaply in the electric furnace than is the case with the cupola. And this ladle cost does not take into consideration the greatly superior metal that is produced in the electric furnace.

The changed conditions of industry that have come about in the last five years have been related to and have affected the iron and steel industry just as truly as has been the case with other lines of industrial endeavor, and it goes without saying that those who realize this fact and act on the knowledge of it will surely be rewarded for their progressiveness and foresight. The costs of pig iron, coke and labor, the principal items in the cost of cupola iron, have increased enormously. High freight rates, which largely account for the high prices of the first two items, show little tendency to become lower. The demand for high-grade

gray iron castings is increasing rather than diminishing, which, when added to the more intense competitive situation which confronts the gray iron foundryman, requires that he seek out and utilize the most up-to-date methods and practices.

By investigating and, where conditions permit, utilizing the electric furnace method of producing gray iron, the foundryman will not only be able to successfully meet this competitive condition, but will, with proper application and operation, be able to increase his net return, because of the superiority of his product and the greater ease with which it can be sold.

The matter of favorable production costs is of primary interest not only because such a condition means satisfactory returns from the marketed product, but also because it spells continuity of operation. More than one foundry can be referred to where high-grade soft gray iron castings are regularly produced from a charge of light steel turnings and with less melting loss, lower production cost and a higher percentage of perfect castings than is possible with the cupola charged in the usual manner with heavy machinery scrap and pig iron.

Gray Iron Electric Practice

In the electric furnace process for making gray iron, the metal is charged by hand or by means of a mechanically operated charging device, which is capable of delivering the charge directly onto a clean hearth. No heat generating fuel is added. The charge comes in contact with no sulphur impregnated coke or foreign matter other than the refractory lining and the pure carbon or graphite electrodes. No air blast is employed and, in fact, the furnace is made practically airtight. It is obvious therefore that the metal can absorb no impurities because none are present in the charge other than those actually in the metal when it is placed in the furnace. Furthermore, another decided advantage of the electric furnace process is that certain of the impurities and undesirable elements, such as sulphur, phosphorus, obnoxious gases, oxides, slags, etc., that are present in the unrefined metal, when heated, can be readily worked out of the molten charge and such elements as carbon, silicon, manganese, etc., can be either added or removed, at the discretion of the operator. Such procedure is not readily possible in cupola operation and then only at the expense of other desirable characteristics that are required in the finished product.

Having, in a general way, considered the means, the methods and the processes, the question naturally arises as to what are the characteristic advantages and superiorities of gray iron produced in the electric furnace.

Advantages of Electric Gray Iron

Foundry practice has demonstrated that carbon is taken up more rapidly by a molten bath of steel (low in carbon) than by molten iron (high in carbon). On the other hand, a rather high silicon content is very essential in gray iron because it has the property of changing the combined carbon into graphitic carbon, thereby producing a casting of a fine grained gray color, which is readily machined. This permits of charging the electric furnace with a less expensive

metal, low in silicon. The carbon content can be readily adjusted in the bath and the essential silicon content can be obtained just before tapping. Such procedure cannot be followed in cupola practice and the makeshift of charging the more costly high silicon pig is the only alternative. The metal must be cast as it comes from the cupola and no opportunity is afforded to correct any undesirable conditions in analysis.

In many gray iron foundry operations attempts have been made to counteract the evil effects of too much sulphur by copious additions of ferromanganese to the cupola charge. Manganese undoubtedly neutralizes sulphur to some extent, but very little of it ever reaches the metal in the cupola hearth because it is unable to withstand the oxidizing influences of the furnace blast. In contrast to this, ferroalloys, of any nature and whenever desired, may be added in the reducing atmosphere of the electric furnace bath with the positive assurance that very little, if any, alloy will be lost by volatilization or oxidation. The absence of air in the electric furnace, that is, the reducing condition, prevents oxidation and retains the volatile elements in the bath. It is seldom necessary to add more manganese than is contained in the material charged. Unless some very special grade of iron is being produced, the silicon content and the temperature are the only features of operation that require attention, and these characteristics can be determined at any time during the heat by simply taking a spoon test and examining the sample when fractured. Gray iron castings, produced in the electric furnace, are, when properly made, universally soft, fine grained, uniform, and free from blow holes and slag.

It is often difficult to get cupola iron hot enough for pouring small, light or thin section castings without running the phosphorus content excessively high. Another limitation of the cupola is that the metal begins to cool as soon as it drops onto the hearth. This requires that the metal must be tapped before it becomes too dull for pouring into the molds. In case of delays in preparing to take the metal when it is ready for tapping the heat cannot be held long in the ladle. It must be taken out and pigged or otherwise be disposed of. Often, when the iron cannot be got sufficiently hot in the cupola to make it run rapidly and freely, high phosphorus pig is used. The phosphorus makes the metal more fluid, but it tends to produce "cold shortness," or brittleness, and to weaken the castings when taken from the molds. Such cupola gray iron is frequently used in the manufacture of stove plate and other light castings, the weakness of which is well known.

Regulating the Temperature

In marked contrast to these well known difficulties, the electric furnace process permits of the variation of the temperature of the bath at will or allows it to be kept constant, if necessary, for several hours. The metal produced in this manner can be poured at temperatures considerably in excess of any temperatures that can be obtained in the best cupola installations. In fact, iron containing only a trace of phosphorus can be rendered extremely fluid by the use of the electric furnace and can be poured into the smallest and thinnest section castings produced in the best modern foundries.

The electric furnace is easily adapted to foundry operations and lay-outs. It is tapped in the same manner as the cupola or, if on trunnions, it can be tilted by either hand or motor control, thus entirely emptying the hearth after each heat. It is more easily and accurately charged as the charge, measured accurately when necessary, is simply shoveled through the charging door at the side of the furnace, or it can be crane-handled onto a special chute, which dumps into the furnace. The heats can come quickly, thus requiring less floor space for molds, and repair and maintenance can be accomplished in minimum time and at minimum expense.

If a rapid melting type of electric furnace is used, power, electrode and refractory economies result which are reflected in the production costs. The fire hazard is reduced, with accompanying lower insurance charges; no great amount of yard space and capital is tied up in the storage of large amounts of pig iron and coke which are required for successful and economic cupola operation; and the plant need never be shut down for lack of raw materials, as the iron scrap required can usually be trucked from a nearby source, until railroad shipments arrive.

Actual production results indicate better gray iron castings from the electric furnace than from the cupola. They have a definite, predetermined analysis and uniform properties and, in the great majority of cases, the ladle cost is lower than is the case with cupola iron.

Characteristic Electric Iron Products

Some of the characteristic gray iron products that may be successfully and economically obtained in the electric furnace are high temperature and pressure pipe fittings; strong, long-wearing pistons and piston rings; and gas, oil and steam engine parts, subject to great wear and stress.

The competition met with by the gray iron founder is not only that of his neighbor, producing cheaper and better irons, but comes also from the steel founder who has encroached more and more on him, due to the gradual substitution of steel castings for gray iron. Steel with its greater strength, durability, and varied properties has taken the place of many parts heretofore made of ordinary cupola iron. The result has been that the gray iron founder, instead of attempting to improve his product, has turned to the manufacture of steel castings in an effort to hold his business. The electric furnace offers a ready and easy means of holding this business in competition with the steel founder, while at the same time continuing in the manufacture of high-grade, competitive gray iron.

A study of the heat treatment of cast non-ferrous alloys is to be made by the United States Bureau of Mines at the Pittsburgh, Pa., Experiment Station. It is proposed to study the annealing of cast non-ferrous alloys for the release of casting strains and the improvement of physical properties. The investigation, which will have special reference to aluminum, will be conducted under a cooperative agreement with a commercial firm. Work on the investigation will be under the supervision of R. J. Anderson, metallurgist Bureau of Mines.

Benjamin L. Whitney, formerly with the Byers Co., has opened an office at 528 Detroit Savings Bank Building, Detroit, and will represent the Orton & Steinbrenner Co., manufacturer of material handling machinery in that territory.

COMING MEETINGS

November

National Founders' Association. Nov. 16 and 17. Annual meeting, Hotel Astor, New York. Secretary, J. M. Taylor, 29 South La Salle Street, Chicago.

American Iron and Steel Institute. Nov. 18. Fall meeting, Commodore Hotel, New York. H. H. Cook assistant secretary, 61 Broadway, New York.

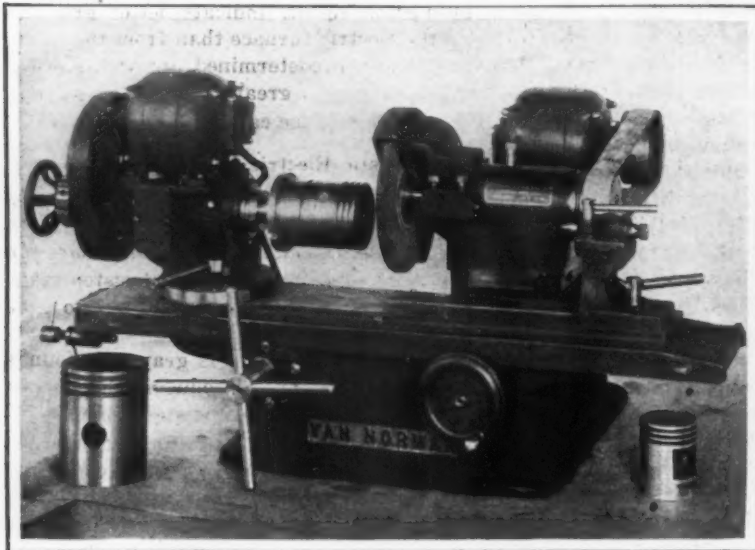
December

Taylor Society. Dec. 1, 2 and 3. Annual meeting, Engineering Societies Building, New York. Dr. H. S. Person, managing director, 29 West Thirty-ninth Street, New York.

American Society of Mechanical Engineers. Dec. 4 to 9, inc. Annual meeting, Engineering Societies Building, New York. Calvin W. Rice, secretary, 29 West Thirty-ninth Street, New York.

New Piston Grinding Machine

A utility tool, primarily for the garage, repair shop and service station, and known as the Van Norman Relio, has been placed on the market by the Van Norman Machine Tool Co., Springfield, Mass. The new tool is especially adapted for grinding pistons, valves, wrist pins and for regrooving pistons, as well as any other internal or external grinding or turning operations within the capacity of the machine. In general design, special attention is said to have been given to



In Grinding Wrist Pins the Work Is Held Between Centers and Rotated by a Key or Pin Inserted in the Work-Head Center. In this case provision is made for holding a diamond truing tool on the tail stock

compactness and rigidity and to elimination of vibration, with handy appliances for setting and convenience of operation.

Among the features emphasized by the makers are: a ball-bearing head constructed in accordance with the principles employed on other Van Norman grinding machines; individual motor drive for both the work and the wheel head; and the arrangement of the work-head spindle to run in a taper bearing with ample provision for take up due to wear. Still other features are: adjustable stops for limiting the travel of the table; arrangement whereby the work head may be swiveled and set at any angle from 0 to 50 deg., locating holes being provided for 0, 30 and 45 deg. to enable same setting in grinding valves and reamers; and a quick and accurate method of holding pistons for grinding.

The workhead swing is 8 in. diameter, the distance between centers, 12 in. and the travel of the work table, 10½ in. The collet has a draw-in capacity of ¾ in. The motor on the work head is ¼ hp. and is geared down on slow speed to a ratio of 20 to 1. The low speed of the work head is 63 r.p.m., and the high speed, 170 r.p.m. The motor on the wheel head is ¼ hp., and the wheel spindle has a speed of 2800 r.p.m. Power is obtained by connecting the machine with an ordinary electric light socket.

The machine shown in the illustration weighs 330 lb. and occupies a space of 3 x 4 ft. Provision is made in the base for bolting to a bench or stand. The regular equipment includes one 8 x ½ in. and one 1 x ¼ in. abrasive wheel; one internal wheel spindle nose; one ½ in. split collet; one collet draw-in spindle; one face plate; one piston adaptor plate and draw bar; one 45 deg. valve reseating reamer; a set of wrenches; a tool holder and a double valve seater.

In a survey of 30 industrial plants in Buffalo which in normal times employ 40,000 workers, 26,750 employees were listed in October as being steadily employed. The most encouraging sign of improvement generally was noticed in the iron and steel industry where the improvement is placed at 7 per cent in October over the preceding month. Building trades showed this industry still leads in employment.

Fuel Economy in Iron and Steel Works

In a paper read before a meeting of the associations of the managers and foremen of the firms of John Brown & Co., Ltd., and Thomas Firth & Sons, Ltd., in England, Capt. H. C. Armstrong had the following to say on fuel economy in iron and steel works:

In all questions of efficiency in metallurgical furnaces there is an outstanding need for much further data with regard to the thermal measurements, which must serve as an effective aid to the task of tracking down the elusive heat units. Experiments on the losses of heat by radiation and conduction of various materials should be made, and constant tests made of the temperature and composition of the flue gases. Lighting up before time and having too large a fire at the end of the task should be watched, as economy can be effected here.

The boiler firer naturally shies at the mention of CO₂ recorders as something beyond his ken, but as many as possible should be fitted to any boiler plant. There are now reliable self-recording instruments available, and the men would soon learn to look upon them as friends; if necessary even a bonus system could be worked on it. Few such recorders are used in the large works, yet practically all the electric power stations use them and keep careful records. When it is considered that to increase the CO₂ in the flue gases from 7 to 44 per cent effects a 15 per cent saving in fuel, the necessity of scientific control is surely obvious.

Water meters to enable the boiler efficiency to be checked should be installed, so that haphazard and usually entirely optimistic guesses can no longer be made. Colliery engineers are perhaps the biggest delinquents in the boiler world. They must be made to realize that because coal is so handy it is not to be abused in its use.

Referring to the figures mentioned above, the comparison between a mill served by modern coal-fired, continuous furnaces and one of much older date, with ordinary hand-charged open-grate furnaces, is very striking. Over a fairly long period the coal consumption has been reduced to 2.02 cwt. per ton throughout as against a minimum of 8 cwt. in the case of the old-type furnaces. This is most significant. Over the period mentioned above a spring mill has reduced its consumption figure from over 5 cwt. to 4 cwt. and under. A tire shop has improved from 18 cwt. to 8 cwt., partially explained by a larger output, but this all the more shows the waste of heat that was going on.

With such figures as 10-12 cwt. for forging furnaces, and 11 cwt. in the case of Siemens producers, there remains a great deal to be done. Three press shops working on (a) no waste heat, (b) partial waste heat, and (c) nearly all waste heat, give consumption figures of 6, 4 and 1.7 cwt. respectively. This shows the advantage of waste-heat boilers. An average saving of 1 cwt. per ton of output in our works would mean about 7 per cent less coal burnt, or, in round figures, say 10,000 tons of coal saved per works per annum. That this could be done is quite possible, and no Utopian dream.

It is of interest to take the ratio of steam coal used to total coal used for all purposes on the works. This is a very constant figure, but in our case the ratio has been gradually improved from 0.415 to 0.370, with a quick return to 0.434 for the month of November. The improvement is due to greater care of the boiler department until the last month, when with several reheating furnaces shut down more steam was probably being produced than was really required.

The Milwaukee Auto Engine & Supply Co., Milwaukee, has changed its name to the Milwaukee Motor Products, Inc.

SUPERPOWER REPORT

Scheme for Consolidating Generation of Electric Power in Region Between Boston and Washington

Secretary of the Interior Fall transmitted to the President on Nov. 5 the completed report of what has been popularly called the superpower survey. This is an engineering study conducted by the United States Geological Survey to ascertain the possible fuel saving from the connecting in the Boston-Washington region of all the large generating plants—both steam and water power—in one great system. Looking ahead to 1930, with the increased demand for power that can then be reasonably expected, the total coal saved annually under the unified system is estimated at 50 million tons. Under motor operation the industries could save \$190,000,000 annually in their power bill and could make a greater output of product. W. S. Murray, New York, was chief of the engineering staff. An advisory board of business men representing the railroads and industries gave practical value to the completed report, which is now published by the United States Geological Survey as professional paper 123.

The North Atlantic coast region was selected for this study because its industries and railroads have the maximum requirements for power. Economy of investment and economy of operation are the two ends sought by this plan, the outstanding feature of which is a network of inter-connecting transmission lines. Interconnection will mean 970 miles of 220,000-volt lines and five times that mileage of 110,000-volt lines. With these major lines, the 1200 miles of lines now operated at 33,000 volts or more will become simply distribution lines for the local public utilities. The area includes only 2 per cent of the United States but contains 22 per cent of the total population. The region contains 96,000 manufacturing establishments, 76,000 of which used power in 1919 to the amount of more than 12½ billion kilowatt hours. Nearly three-fourths of this power was generated by the industries themselves, largely in units of small capacity, with low efficiency as compared with the large units of the central stations of the electric public utilities. So it has been found that most manufacturing plants in this region economically purchase power, and if they had purchased it in 1919 they would have saved 13½ million tons of coal.

The report is replete with charts and tables, and further consideration will have to be postponed for a later issue. Besides the large section devoted to the analysis of power requirements of industries, there are sections covering electric utilities, electrification of heavy traction railroads and the cost of the system, including special studies of steam electric plants and hydro-electric plants.

Other Reductions Pending

CHICAGO, Nov. 7.—Numerous proposed changes in rates, rules and regulations, approved by Western lines but subject to concurrence of Eastern railroads, have been announced here by the Transcontinental Freight Bureau. The changes will not be effective until lawfully published and the probable effective date was not announced.

The changes include an extensive revision of import and export rates via Pacific ports.

It also is proposed to cancel rates on intoxicating liquors, including "high wines" and "spirits pure" and certain others.

The following rates on iron and steel rails, west-bound for export in 80,000-lb. minimum carload lots, were ordered published:

From Chicago and West: \$13.44 a gross ton; with the same rate prevailing from the "Birmingham district" and from Minnequa, Col. From "rate basis one points," \$15.46 a gross ton.

Rates on iron and steel articles, carload lots, west-bound for export, were amended as follows: From

Chicago and West and from the Birmingham district, 60c. per 100 lb.; from Pittsburgh, 69c. per 100 lb., and from Minnequa, Col., 46c. per 100 lb.

Increase in Labor Cost in British Iron and Steel Works

In an editorial on industrial costs, the *Iron and Coal Trades Review*, London, publishes figures showing the part which wage schedules have had in pushing up the prices of pig iron and finished steel, as well as prices of the main materials from which they are made. The figures are given in the table below, together with the percentage of advance between 1913 and 1920. It must be remembered that this percentage would be lower, if account were taken of the gold value of the 1920 figures.

Average Wages Cost Per Ton			
Shillings	1913	1920	Per Cent Increase
Ironstone (ore)	2.26	8.375	271
Coal	6.325	22.883	262
Limestone	4.286	4.51	253
Coke	13.067	50.73	288
Pig iron	29.84	123.825	326
Steel	68.42	296.55	333

While these figures were drawn from a single concern (Bolckow, Vaughan & Co., Ltd.), they indicate averages over entire years, and hence may be regarded as fairly representative. Figures for the total cost of producing a ton of steel are also given, which makes it possible to compare the rate of advance in direct labor cost with the rate of increase in all other items.

Shillings	1913	1920	Per Cent Increase
Total cost per ton	110.26	363.26	229
Labor cost per ton	68.42	296.55	333
Other costs per ton	41.84	66.71	59

Safety Cleaning Machine

A machine designed to do away with the bucket-and-brush method of cleaning ball-bearings, drills, milling cutters and other small tools and parts has been developed by the Black & Decker Mfg. Co., Baltimore.

It consists of a cast-iron pedestal with a bowl, 13 in. in diameter and about 12 in. deep, at the top. About 5 in. from the bottom of the bowl a fine mesh brass screen is supported. A plunger pump is cast integral with the bowl at one side, as shown in the illustration, and the bowl provided with a safety cover, arranged so that it cannot be left open. The cover is controlled by a handle which operates the plunger pump when the cover is lifted.

A gallon of gasoline or other cleaning liquid is poured into the bowl and the operation of the plunger pump forces a stream of this fluid from one side into the center of the bowl.

It passes through the screen and returns to the sump so that the liquid may be used over and over again. The part to be cleaned is held under the stream, which washes the dirt and chips from the part and deposits it on the screen below.



The Bowl Has a Safety Cover Which Cannot Be Left Open

American Merchant Marine

Vigorous Policy Will Be Followed By the National Administration

WASHINGTON, Nov. 8.—That the present Administration and Shipping Board are determined to employ every legitimate means to establish an American merchant marine is made evident by the official announcement from the board that reorganization plans have been completed and the board from now on will function as provided by the Jones act. It will be recalled that the Wilson administration declined to put into effect that section of the Jones law which authorizes the abrogation of certain treaties in order to permit the establishment of preferential railroad rates on products that are to be carried in American bottoms. As is usual with legislation of this kind, and particularly where it relates to attempts to build up an American merchant marine, this clause was the object of many protests, coming from certain interests within the United States and from foreign countries. The customary claims of discrimination and the violation of good faith were made, along with the hackneyed plea that such action would endanger international relations and bring about retaliation. These claims have been accepted as being disingenuous, made particularly

so in view of the world-wide discriminations through various forms against American shipping.

It is desired by the Shipping Board to thoroughly arouse the country in all its aspects, including agricultural, industrial and financial, to the vital necessity of establishing a permanent, privately owned American merchant marine and to get assistance from these sources to overcome obstacles that may stand in the way of such an achievement. The Jones act undoubtedly goes a long way in its direction and now that it is to be put fully into effect, it is believed that it will be an instrument that will give vigor to an American merchant marine. At the same time, there are, of course, obstacles such as the higher cost of operating American ships, some of them brought about by the LaFollette seaman's act, and this and related subjects are to be made a matter of study.

The Bureau of Construction will be under Commissioner William S. Benson. His duties will be to study the relative cost of shipbuilding at home and abroad, particularly the cost of building the most efficient types. Commissioner George E. Chamberlain will have charge of the Bureau of Law. Commissioner Lissner will head the Bureau of Research. He will conduct studies, and gather data pertaining to various activities in which the United States Shipping Board would be affected or interested.

CANADIAN ORDER HELD UP

Buyers in That Country Protest Against Ruling of Minister of Customs

TORONTO, Nov. 7.—The order of the Minister of Customs and Inland Revenue to the customs officers of Canada to appraise importation of basic steel products at not less than the values given in THE IRON AGE has been temporarily rescinded pending a further discussion of the subject. The regulation, as announced, was printed in THE IRON AGE of Nov. 3, page 1159.

Canadian buyers of steel are said to have entered a strong protest against the order. The alleged refusal of a few American mills to permit the Canadian customs authorities to examine their cost sheets was the incident that led up to the issuance of the order.

Representatives of American mills say that there has been no "dumping" of steel into Canada and that sales in that country have been made at prices which are no lower than those at which sales have been made in the United States.

The Canadian customs act, which was adopted June 4, 1921, gave the Minister of Customs the arbitrary power of stating what profit a foreign company may make on its goods, irrespective of what the home consumption price may be, and irrespective of whether the same goods are made in Canada or not.

Profits are defined as the ordinary profits which the exporter has been in the habit of making in the usual course of business on the particular article exported.

Where the Minister of Customs decides that the exporter of steel or other goods into Canada is not making enough profit, the Canadian purchaser must pay the Canadian Government the full amount of any additional profits which the minister may ask for, plus the full amount of the American exchange on the increase, and also the regular duty and excise tax, figured in the usual way on the total of the amount set by the minister, and exchange.

The Canadian Government waits until the importation of goods into Canada actually occurs, following which it sends its inspector to the manufacturer to examine his books to determine what profit he is making. The inspector brings this information back to Ottawa and the Canadian importer is afterward notified as to what he shall have to pay.

In times of normal demand, the Canadian steel mills fall short by about 1,000,000 tons of steel a year of meeting the Canadian home consumption demand, and most, if not all, of this has been imported from the United States. The practice of the Canadian mills has been to make prices which would just meet the United

States prices, plus freight, duty and other charges involved in shipment into Canada. Lately the mills in the United States have made very low prices, which, however, are stated to be no lower than have prevailed on similar business in the States.

Drafting Aids to Manufacturers

In Springfield, Mass., a new departure in supplying draftsmen to manufacturing concerns has been under way since Jan. 1. The Engineering School of Drawing has been taking young men with practical mechanical or shop experience and teaching them to put properly on paper the necessary features of the design of a machine or mechanism. These men are then at the call of manufacturers, for temporary or permanent assignments, for supplementing an overloaded force or for developing a new idea or construction. The individuals are selected for such service by the head of the school, on the basis of the stated needs of the manufacturer and the observed capacities of the men available.

Lower Rates on Imported Manganese and Chrome Ores

WASHINGTON, Nov. 8.—Recent reductions in freight rates in official classification territory on iron ore have prompted a lowering of the rates on imported manganese and chrome ore to the same territory from all Atlantic ports, to become effective Nov. 15. The decrease will be approximately 25 per cent. Special permission to reduce the rates on 15 days' notice has been granted by the Interstate Commerce Commission to W. S. Curlett, A. P. Gilbert and N. W. Hawkes, tariff publishing agents.

At present the rates on imported and domestic manganese and chrome ore are the same. The differential in favor of imported ores beginning Nov. 15, therefore, will be about 25 per cent, but none of the reduced rates are to be lower than those established on iron ore.

The following table shows typical rates to be applied from Baltimore, Norfolk and other Virginia points, Boston and New York and Philadelphia per gross ton:

	Balti- more	Norfolk and Other Virginia Points	Boston and New York	Phila- delphia
Sixty per cent points (Pittsburgh district)	\$2.52	\$3.46	\$3.12	\$2.72
Seventy per cent points (Stewart, O., dis- trict)	3.04	3.46	3.64	3.24
One hundred per cent points (Chicago dis- trict)	4.60	4.60	5.20	4.80

MODERATE BUYING

Valley Consumers Pretty Well Covered for This Year's Requirements

YOUNGSTOWN, OHIO, Nov. 8.—Buying of steel products is on a more moderate scale with the principal Valley independents, due in measure to the fact that consumers are largely covered on their requirements for the rest of the year. Interest is therefore directed toward 1922 and the prices which will be developed during the first quarter and the first half. Independent tin plate makers are on the \$4.75 level definitely established last week by the reduction of the American Sheet & Tin Plate Co. on production plate. Prices generally reflect the weakening tendencies of the market, with the exception of wire products and nails. The Youngstown Sheet & Tube Co., principal independent maker in this territory, has finally established the higher levels of \$2.60 for plain wire and \$2.90 for nails, to which the American Steel & Wire Co. advanced Sept. 12. Independents which failed to follow the advance in wire products at that time have been accepting tonnage in the meantime under blanket contracts, permitting jobbers and manufacturers to order at the lower levels.

Weakness in Sheets

Lacking the support of the leading interest, the recent \$5 advance per ton in black and galvanized sheets has failed to show strength, and it is common knowledge that tonnage is moving on the basis of 3c. for common sheets and 4c. for galvanized. Blue annealed sheets are quotable from 2.25c. to 2.50c., with moderate tonnages moving. A number of district interests exporting through the Consolidated Steel Corporation have been rolling lighter gages of black sheets, particularly to 30 gage, for consumers in Japan. In spite of failure of the attempt to establish quotations at 3.25c. and 4.25c., makers are much encouraged over the volume of buying which is being done and predict it will not be long until the higher levels find an actual basis in transactions. Galvanized grades continue in fairly active demand, while black sheets are being absorbed by manufacturers for all sorts of uses. The automobile industry continues to be a heavy buyer of both black and full finished sheets, as well as of strip steel, inasmuch as stocks of some large makers were unbalanced and in some instances largely depleted.

Plates for Cars

One of the most important transactions in plates involved placement of 10,000 tons of plates and angles with an Eastern producer by a fabricating plant in the Shenango Valley, the material to be used in manufacture of tank cars. It is understood the business went to the Cambria Steel Co. at a price considerably below the nominal quotation of 1.75c. by Valley interests. Quotations on plates range down to 1.60c. The chief district maker is shipping lighter gages to a car repair interest at Niles, against car repair contracts which it is filling. Another Valley plate maker states that it could not enter the market and produce plates at current costs below 2c., and its plate department is therefore obliged to remain inactive.

Makers of strips are endeavoring to establish the current quotations of 2.25c. on hot rolled and 4c. on cold strip on 1922 business. Most of the tonnage shipped during the remainder of the year was accepted prior to the recent \$5 per ton advance. It is reported that the increase has had the effect of stimulating specifications against contracts at the old figures. One district strip producer has added a number of substantial customers within the past two months who promise to take in the aggregate considerable tonnage as conditions approach closer to normal.

Little Activity in Pig Iron

Current activity in pig iron is exceedingly limited, though a number of inquiries for first quarter delivery in 1922 are before steel works interests, with large

accumulations. The market has settled to \$19 for standard basic and \$20 for Bessemer. Steel-making demands of district independents have generally been insufficient as yet to warrant operation of additional furnaces, though surplus stocks have been largely reduced in some cases.

One of the bright spots in the finished market is the sustained demand for merchant pipe, which is moving in steady tonnages for construction enterprises. Very little business in lapweld sizes is coming through and the market is far from normal. Makers are unable to give delivery under two to three weeks on certain sizes of standard pipe.

Though the tin plate price has declined \$5, buying continued on a sustained basis, the best indication of the situation being found in the enlarged production of independents. It is indicated that a number of interests, which professed to have maintained a \$5 price and a \$5.25 quotation, were actually accepting business at \$4.75, and were thereby getting tonnage that might otherwise have gone to the leading maker. Some tonnage in tin plate is understood to have been taken on this basis for 1922 delivery.

Iron and Steel Bars

Iron and steel bar buying is very limited and confined to actual needs. Producers are endeavoring to uphold a price of 1.65c. base, but have scarcely been successful in the attempt. An index of the weakness of the market is found in the average selling price of 1.70c. by mid-Western makers for the 60 days covered by the last bimonthly settlement. To establish the average, bars have evidently sold below this level and have been weaker, if anything, since the 60-day period ended.

In ferroalloys, the principal purchase of recent date involved several hundred tons of spiegeleisen taken by a steelworks interest in the Valley at \$30, delivered. The best bid which buyers have been able to obtain in the last two weeks on 80 per cent ferromanganese is \$58.35 at seaboard, for imported material. Domestic producers have offered to meet this figure. Buyers are holding out, though, for a price of \$60, delivered, which governed a purchase several months ago. The offered price would amount to \$64.40 delivered. Spelter has eased off and is moving at 4.55c., about 20c. down from the recent peak.

The old material market is inactive as consumers' requirements have been largely filled for several months. The market continues around \$15 for heavy melting scrap and \$12.50 for hydraulically compressed.

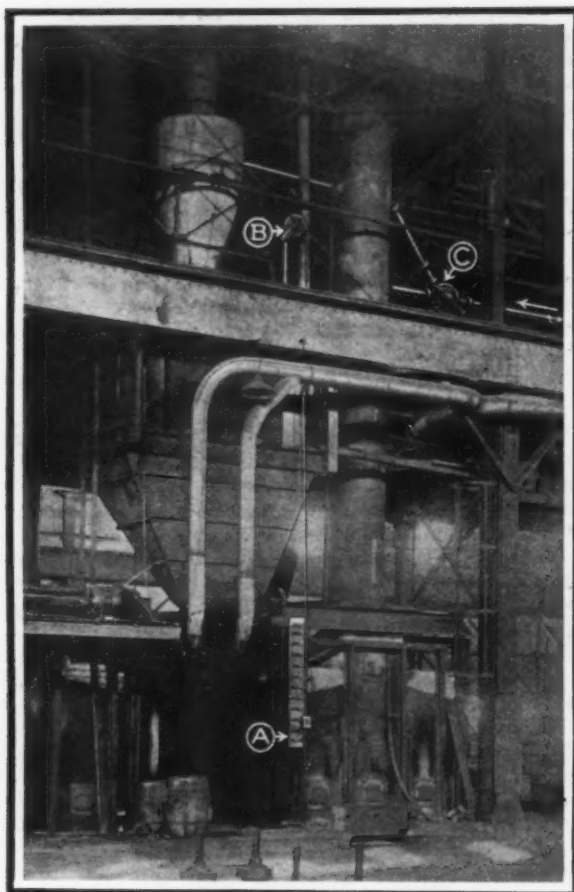
The only activity in semifinished material is confined to open-hearth sheet bars, which are moving under contract largely at \$30, though it is unlikely new business would be accepted under \$32.

Manganese Ore from Chile

WASHINGTON, Nov. 8.—Because of its high grade and the reduced ocean freight rates, according to Edwin Salz, American consular agent at Coquimbo, Chile, manganese ore from that country could be extracted and shipped to the United States in normal times with a good margin of profit. There is no export tax on this ore but mine owners must pay "patents" or license to operate every year, usually an insignificant amount. The most important deposits are at Marquesa, Tres Cruces, Corral Quemada and near the port of Carrizal Bajo. The approximate cost of manganese ores from the deposits at Marquesa, which are situated on the railroad into the Elqui Valley, 36 kilometers from Coquimbo, and Tres Cruces, situated on the longitudinal railroad 126 miles to the north of Coquimbo, is 35 to 40 pesos per ton, or about \$3.50 to \$4, United States currency at the present rate of exchange. The method of extracting the ores is most crude and if machinery and motor trucks were used costs would be materially reduced, it is stated. The grade of Chilean manganese exported in recent years, the report says, gave the following analysis: Manganese, 49, 50, 51 per cent; silica, 8 to 9 per cent; iron, 1 to 2 per cent, and phosphorous, 0.02 per cent (maximum).

Indicator for Powdered Coal Bins

An indicating gage to determine the amount of fuel in pulverized coal bins has been developed by the Quigley Furnace Specialties Co., New York. The indicator, which is placed in convenient reading position, is suspended by a chain and rod from a sheave, which may



Front View of a Fuel Bin at Works of Newport Rolling Mill Co., Showing the Fuel Gage Installed. Indicator board is shown at A and the sheave and support at B just above the girder in front of fuel bin. Switching valve for delivery of fuel to bin through collector is indicated by C. Both valve and gage are operated from the floor

be either supported from the bin by a suitable stand or suspended from overhead.

The operator lifts the heavy metal so-called float of the gage by pulling down the rod and then by lowering it "feels" the fuel level, the quantity of fuel required to fill the bin being shown on the indicator board. The gages are used in the plants of the Newport Rolling Mill Co., Otis Steel Co., the Falcon Steel Co., Inland Steel Co. and the Knoxville Iron Works.

Inquiry as to Coal Stocks

WASHINGTON, Nov. 7.—Many consumers of bituminous coal throughout the country have received a questionnaire from the Government at Washington, inquiring as to their stocks of coal on Nov. 1.

The purpose of the questionnaire is to find out how much coal is on hand as the country enters the winter, in order that consumers and producers alike may make intelligent plans. The Geological Survey's weekly coal report shows that soft coal production up to Oct. 1 was 112,000,000 tons behind last year, and from 75,000,000 to 90,000,000 tons behind normal. The decrease is in part to be expected, because of a decline in consumption and in exports, and it does not necessarily mean that consumers are unwisely burning up their reserves. But if there is any possibility that the above-ground reserves are below the safety line, the best way to settle the point, the Government thinks, is to take account of stock and lay all the facts before the public.

Secretary of Commerce Hoover, in particular, be-

lieves the information is necessary "in view," as he says, "of the disturbance to the coal trade that may eventuate with the renewal of the coal miners' biennial working agreement at the end of March."

It is hoped to complete the canvass and publish a preliminary report within 30 days and manufacturers are being urged to reply promptly to the questionnaire.

More Steel Workers at Work

WASHINGTON, Nov. 5.—Employment in the iron and steel industry for October showed an increase of 16,221, or 5.1 per cent, over September, according to the industrial survey of the United States Employment Service. This was more than half of the total increase of 30,772, in the 11 industries reporting greater employment, and an excess over the total net increase of 15,626 (1.01 per cent) on the pay rolls of 1,428 firms in October, when compared with September.

Industrial classifications showing increases were iron and steel, lumber, leather, liquors, chemicals, stone, clay and glass, metal and metal products other than iron and steel, tobacco and railroad repair shops. Industries which showed a decrease are paper and printing, vehicles for land transportation and miscellaneous lines. The employment in the iron and steel industry in October constituted 21.2 per cent of the total number of employees engaged in the 11 industries which reflected increases, and was greater than that of any other single line.

Youngstown showed the greatest percentage of increase in employment of all of the 65 cities reporting, amounting to 23.3 per cent, or 5,354 in number of employees. The increase in Pittsburgh was 8.8 per cent, or 5,723 employees. Other increases were in Johnstown, Pa., 6.7 per cent, or 743 employees; Birmingham, Ala., 5.2 per cent, or 1,153 employees; New York, 1.6 per cent, or 2,302 employees; Philadelphia, 1.5 per cent, or 1,521 employees. Cleveland showed a decrease of 2.5 per cent, or 1,422 employees.

Increases in employment in railroad repair shops amounted to 6.19 per cent, or 4,051 employees; while in metal and metal products, other than iron and steel, the increase was 2.16 per cent, or 1,156 employees.

Lake Superior Iron Ore Shipments in October

Shipments of iron ore from Lake Superior in October were 3,233,081 gross tons as compared with 8,848,986 tons in October, 1920. This is a decrease of 5,615,905 tons or 63.46 per cent. The season's shipments to Nov. 1, this year, have been 21,894,275 tons as against 53,122,342 tons to Nov. 1, 1920, a decrease of 31,228,067 tons or 58.78 per cent. The following table gives the October and season shipments by ports and the corresponding figures for 1920, in gross tons:

	October		To Nov. 1	
	1920	1921	1920	1921
Escanaba	1,030,683	405,554	6,514,327	1,719,885
Marquette	482,495	259,491	3,117,097	719,293
Ashland	1,260,162	335,180	7,447,197	2,183,108
Superior	2,274,801	655,915	13,566,737	4,833,413
Duluth	2,432,465	1,188,926	14,089,331	9,164,803
Two Harbors...	1,368,380	388,015	8,387,653	3,273,773
Total	8,848,986	3,233,081	53,122,342	21,894,275
Decrease		5,615,905		31,228,067

The Duluth proportion this year to Nov. 1 of 41.86 per cent was considerably more than a year ago when it was 26.52 per cent of the total. The Great Northern dock at Superior is credited with 20.12 per cent of the total shipments this year against 22.01 per cent last year.

Timken Bearings for Mine Equipment

The Timken Roller Bearing Co., Canton, Ohio, has designed tapered roller bearings for application to mining equipment and signalized the fact by an exhibition which it made in the Coliseum, Chicago, at the time of the meeting in the week of Oct. 17 of the American Mining Congress. Among other things exhibited were mine car axles built by mine car manufacturers and equipped with Timken bearings.

EXPORTS TO BE RECLASSIFIED

Broadening of Scope and Finer Subdivision Are Features of New Arrangement

WASHINGTON, Nov. 8.—Reclassified and made more detailed and specific, the Bureau of Foreign and Domestic Commerce has completed new drafts of its schedules of exports carried in the monthly summary. The change in the form of publishing the figures will become effective in January. Reclassifications of import tables also will be made, after pending tariff legislation is enacted.

The rearrangement and increasing of the export items long has been under consideration, and frequently undertaken, but has never before been completed, for one reason or another. It has now been made in response to appeals from industrial interests of the country, who have desired a more scientific adjustment of the schedules, so that information of greater value might become available.

One means of doing this has been to subdivide general classifications into specific heads, that have been detailed according to the character of product and its special purposes. By co-operating with trade associations, and other organizations interested in the subject, the bureau has developed and enlarged schedules that will provide much greater data, and much more specific information, than the present schedules afford.

Broadly, the new schedules, which come under nine groups, are constructed according to uses and classification, by agricultural or industrial branches, as distinguished from the present system of alphabetical sequence. Indicative of the work of amplification that has been done is the fact that the new classifications show an increase of 70 per cent over the number of the present ones. The export tables now carry approximately 700 items; the new ones will contain about 1200.

Important changes have been made both in the iron and steel and machinery export tables, involving not only subdivisions under heads that now are general, but also the addition of new items. The number of additions to the machinery table is especially large.

Iron and steel products have been placed in group 6 under the general classification of "Ores, Metals and Manufactures of," the purpose being in this, as well as in all other instances, to include under one group all of the items pertaining to it, instead of scattering them miscellaneous through the tables according to alphabetical arrangement. An idea of the adjustment of the new schedule can be obtained by pointing out the more prominent revisions.

"Bars or Rods of Steel" as now carried, is to be subdivided, and gives recognition to the different classes of steel bars through the items "Iron and Mild Steel Bars, not Containing Alloys" and "Steel Bars Containing Alloys." "Iron Sheets and Plates" will now include "Iron and Steel Plates, Sheets, Boiler Plates, not Fabricated." "Structural Iron and Steel" has been subdivided into "Structural Iron and Steel, Fabricated" and "Unfabricated and Ship Plates." "Wrought Pipe" has been changed to "Welded Pipe," and both "Black" and "Galvanized" itemized. "Rails" has been subdivided into "Rails, 50 Pounds per Yard and Over" and "Rails, less than 50 Pounds per Yard." The item "Malleable Iron Fittings" also has been added.

Machinery exports have been removed from the iron and steel classification and placed under main group 7, "Machinery and Vehicles," which includes all classes of machinery, such as agricultural, automobile, aircraft, etc., some of which now are listed separately.

Such items as Diesel and aircraft engines, now included with other engines, are to be carried individually. Generators are to be divided into a number of items, including those relating to transformers, etc. Construction machinery of all kinds is classified, instead of being confined to excavating machinery; and mining machinery is detailed into different kinds, instead of being disposed of under mining machinery and "all other."

Metal working machinery items now number four,

while under the new schedule there are 19 items, and textile machinery items have been increased from three to seven. Agricultural machinery items have been increased from eight to 27. Vehicles includes all motive power vehicles, and embraces automobiles, trucks, etc., which in turn have been subdivided by classes.

Decreased Demand for Refractories

PITTSBURGH, Nov. 7.—Demand for refractories still reflects closely conditions in the iron and steel industry. The slowing down in the demand for iron and steel resulting from the fact that the end of the year is in sight, and that buyers also feel they will gain something from a reduction in freight rates, is felt in the recent demand for refractories. Releases against contracts are fewer than they were recently and few new orders of any considerable size have lately been placed. The largest new order, one for 200,000 silica brick for an Eastern steel company, which ordinarily would not occasion a ripple, is regarded with real importance now.

We note no special change in quotations, which are largely nominal, and there continues to be some difference between what is quoted and actually paid. Manufacturers say there is no profit in business taken below quotations, but all of them are not in a position to hold firm against the demands of buyers for lower prices. Plant activities do not increase much.

We quote per 1000 f.o.b. works:

Fire Clay	High Duty	Moderate Duty
Pennsylvania	\$34.00 to \$37.00	\$28.00 to \$34.00
Ohio	34.00 to 38.00	28.00 to 33.00
Kentucky	33.00 to 37.00	30.00 to 35.00
Illinois	35.00 to 40.00	30.00 to 35.00
Missouri	37.00 to 42.00	28.00 to 33.00
Silica Brick:		
Pennsylvania		30.00 to 35.00
Chicago		35.00 to 40.00
Birmingham		46.00
Magnesite Brick:		
Standard size, per net ton.....		60.00
Chrome Brick:		
Standard size, per net ton.....		50.00

Low Bids on Steel for Navy

WASHINGTON, Nov. 8.—Supplemental bids received by the Bureau of Supplies and Accounts, Navy Department, in connection with steel wanted for stock purposes at various yards, develop the fact that on the larger sized lots of plates, the Worth Steel Co., Claymont, Del., quoted a price equivalent to the base of 1.45c., Pittsburgh, and 1.60c. on some of the smaller sizes; the Donner Steel Co. bid the equivalent of 1.50c., base, Pittsburgh, on part of the shape tonnage, and of 1.40c., base, Pittsburgh, on part of the bar tonnage. The Cambria Steel Co., which bid on all of the plate, shape and bar tonnage, quoted from 1.57c. to 1.60c., base, Pittsburgh, on plates; 1.58c. to 1.60c. on shapes and 1.60c. on bars. Among other bids on either all or part of the tonnages, established on the Pittsburgh base equivalents were:

	Plates	Shapes	Bars
Jones & Laughlin Steel Co.....	1.60c.	1.60c.	1.60c.
Carnegie Steel Co.....	1.70c.	1.70c.	1.60c.
Bethlehem Steel Co.....	1.75c.	1.75c.	1.75c.
Central Iron & Steel Co.....	1.60c.		

Shippers Ask Prompt Rate Cut

A recent exchange of telegrams between W. H. Chandler, president of the National Industrial Traffic League and T. DeWitt Cyler, chairman of the Association of Railway Executives, indicates that the matter of further wage and rate reductions is still alive, notwithstanding the intimation of the Railroad Labor Board that another adjustment in wages is not in immediate prospect. In his telegram, Mr. Chandler pointed out that shippers and the public generally expect the carriers to make application for concurrent wage and rate cuts as quickly as compliance with provisions of the transportation act will permit. Mr. Cyler's reply intimates that applications for reduced wages are being made and that it is also the intention of his association to confer with the Interstate Commerce Commission as to further reductions in rates at the earliest date possible.

Reinforcing Steel for Road Use

Test Highway Built by Columbia Steel Co. to Study Methods of Reinforcement
—Special Device for Laying Steel

— BY CHARLES W. GEIGER —

ROAD building difficulties were studied by the Columbia Steel Co. last winter, with the idea of finding a way to reduce the cost of reinforcing steel. As a result, the company is manufacturing a special grade of steel having greater strength than the reinforcing steel now available. This steel is provided with an extra bond, so as to make the addi-

The two photographs show the structural steel, and the novel method of placing it, which insured an accurate placement. A cradle was designed, as shown, consisting of angles and pipes anchored to a 4-in. pipe 18 ft. long. The small pipes were flattened on the under side, the flattened section resting directly on the subgrade. This pipe supported the lower layer of steel

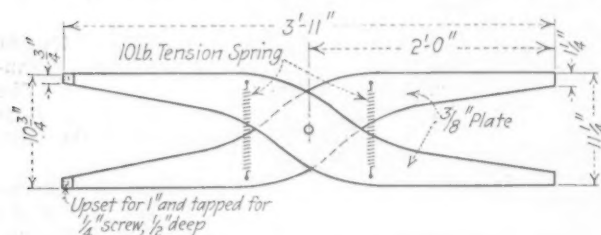


Two Views of the Method of Laying Steel Reinforcing in the Experimental Concrete Road. The large pipe at lower left acts as a drag for the smaller flattened pipes near the bottom of the concrete mass and the angles near the top of that mass. These two sets—pipes and angles—support the reinforcing steel in position until after the concrete is rammed solidly around it; then they are hauled out to support the reinforcing for the next section

tional strength available, and also preserve the other qualities in steel necessary for work of this character.

This step reduced costs beyond expectations, and placed reinforced concrete within the range of practical possibility from the economic point of view. However, there was still a lack of information in other directions, and the company has now undertaken the construction of a test highway, which is to be destroyed by means of truck traffic.

Before starting the building of this test highway,



Extensometer Extension Used for Transmitting to the Recording Instruments the Movement of the Road

questionnaires were sent out to the highway engineers of California, asking for their views as to what should be included in the test, and for suggestions. State and federal engineers were also consulted, with the same object in view. The hearty co-operation of all was freely given, with the result that thirteen types were selected as conforming the nearest to all the views given.

The Columbia Steel Co. then began to build, at Pittsburg, Cal., a test highway, which consists of these thirteen types. The road varies from 5 to 8 in. in thickness, and the steel reinforcing used in the various sections varies from 20 tons per mile to 69 tons per mile.

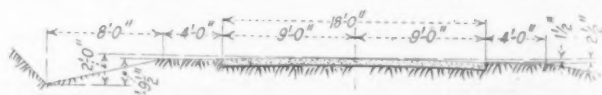
Section H of the road is built with bars of structural grade. Sections C, D, G, K and L are built with bars of the special grade. Concrete in all cases consists of 1 part cement, 2 parts sand and 4 parts aggregate.

reinforcing, 13/16 in. above the subgrade. The angles supported the upper layer of steel reinforcing, 2 1/2 in. above the lower layer. The 4-in. pipe was attached to the concrete mixer and was used as a pull bar. As the mixer moved forward, the cradle was pulled ahead, leaving the reinforcing bars in place, and the angles and flattened pipes, when thus pulled out, left a minimum void in the concrete.

The highway, in the tests soon to begin, will be hammered to destruction by means of motor truck traffic. Complete check of results at all stages will be made so that, at the conclusion of the test, the results will be available in practical form, and used to advantage in determining what types of construction are best adapted to California soil conditions.

Although the experiment will cost approximately \$100,000, it is estimated that it will cost considerably more to destroy the road than to build it. Donations of equipment and material have been made by several concerns and individuals who appreciate the value of the experimental work undertaken.

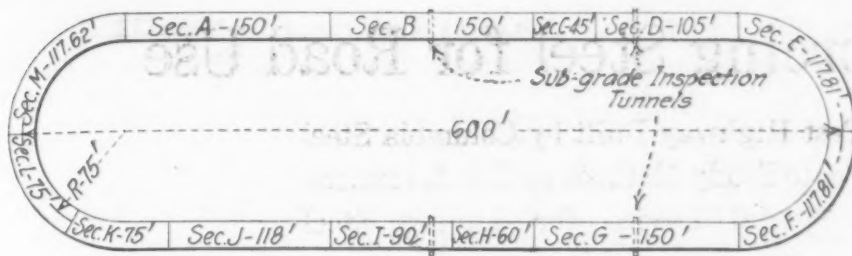
The conditions of the test are such, and the participation of eminent engineers of such a nature, that the results, it is believed, will be of the utmost value to state and county road builders. Sections of the road that give way first will be repaired, so that the



This Section Is Maintained Throughout the Length of the Experimental Roadway

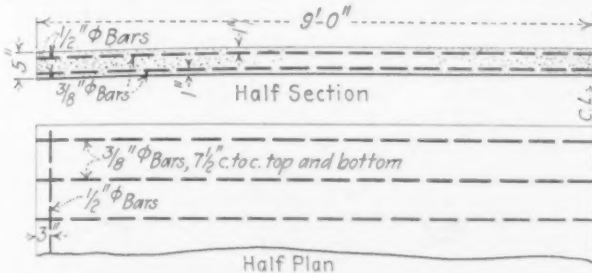
whole road will be usable until its last unit fails under the strain. This will afford valuable opportunity to observe results of various types of repair work, a matter of particular interest, as so many state highways are now undergoing reconstruction.

The road will be subjected to a greater strain, considering the number and weight of vehicles, than any highway in the state receives from its regular traffic. Observations will be made of the results of this traffic



Layout of Experimental Roadway, Showing Locations of Thirteen Sections Varying in Reinforcement and in Thickness. Four sub-grade tunnels permit inspection of the under side

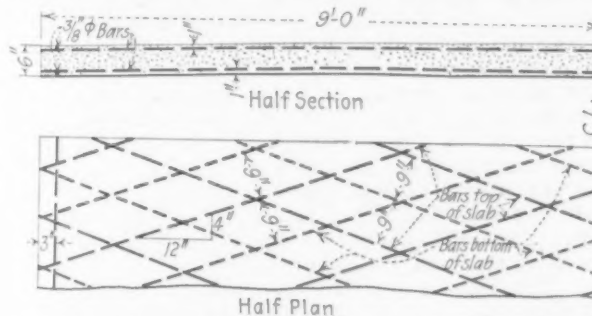
and later, when some of the stronger sections fail to yield, War Department equipment will be used to complete the destruction. These will include heavy tractors, gun carriages and the new Government caterpillar



Section K, Above, Is the Same as Section G, Except That the Latter Is 6 In. Thick

tractor, which weighs 28 tons and has a speed of 25 miles per hour.

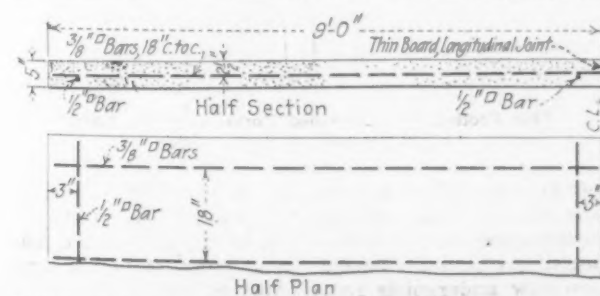
For the purpose of taking observations on the under side of slabs, to determine the effect of various truck loads and speeds on the flexure of the slabs, as well as on the subgrade, four tunnels have been built under



Section C, Above, Is the Same as Section D, Except That in Section D All Bars Running "Northeast and Southwest" Are in the Top of the Slab and All Bars Running "Northwest and Southeast" Are in the Bottom. Section L is the same as Section D, except that its thickness is only 5 in.

the different sections of the test highway. Steel rods, embedded in the concrete slab, extend down into the tunnel; to them are attached pens which bear on a moving record sheet, indicating directly the flexure caused by loads on top of the pavement.

The extensometer will also be used to measure these loads from the bottom of one of the reinforced slabs. Holes 10 in. apart were drilled in to the lower layer of reinforcing rods, and thimbles placed around the holes, so that the concrete could not flow into them. By means of an extension shown in one diagram the



Section H Is the Only One in Which Ordinary Structural Grade Steel Was Used for Reinforcing, and the Only One with a Longitudinal Joint Along the Center, Necessitating Additional Longitudinal Reinforcing at That Point

contraction and expansion of the reinforcing rod will be transmitted to the extensometer, which can be observed from the tunnel proper. Without this extension it would be difficult, if not impossible, to use the extensometer to measure the loads from the bottom of the slabs. Readings will also be taken with the extensometer on top of all slabs.

The research work is under the direction of Lloyd Aldrich, consulting highway engineer, and J. B. Leonard, consulting structural engineer. Details of the sections follow:

Section	Thickness	Reinforcement, Tons per Mile	Sub-grade	Remarks
A	5 in.	20	Crushed rock	California type
B	5 in.	20	Adobe	California type
C	6 in.	55	Adobe	Diagonal reinforcing
D	6 in.	55	Adobe	Diagonal reinforcing
E	8 in.	None	Adobe	Inverted curbs
F	8 in.	None	Adobe	Inverted curbs
G	6 in.	69	Adobe	
H	5 in.	24	Adobe	
I	5 in.	24	Adobe	Inverted curbs
J	6 in.	None	Adobe	Arizona type
K	5 in.	69	Adobe	
L	5 in.	55	Adobe	Diagonal reinforcing
M	7 in.	None	Adobe	Inverted curbs

To Make Charcoal Iron in Oregon

The Oregon Charcoal Co. has been organized and has prepared plans for the erection of a 50-ton charcoal iron blast furnace in Columbia County, Ore., where it is estimated there are over 4,000,000 tons of iron ore in a half section of land which the company has purchased. Assays made by five metallurgists show a 54 per cent content of metallic iron. The deposit lies in the hills about a mile and a half back of Scappoose. It is the purpose of the company to have owners of cut-over land near the proposed plant make charcoal, a man to be secured to teach them open pit charcoal burning. The company will also install its own kilns. Efforts will be made to induce others to install a wood distillation plant that would make a by-product charcoal. Limestone would be secured from either Puget Sound or Lime, Ore.

Expected markets for the charcoal iron are tractor manufacturers, grey iron foundries, car wheel manufacturers, freight car builders, as well as export. The freight on iron from the East is now \$20 a ton. It is expected that a contract for the erection of the blast furnace will be let in 60 days.

The following are officers and directors of the company: C. I. Calkins, president, who is president of the Bank of Sherwood, Sherwood, Ore.; J. A. Miller, vice-president, Miller & Bauer, contractors; J. H. Kelley, secretary, attorney, Yeon Building; R. H. Par, Sherwood, Ore.; A. W. Martin, managing director; F. A. McGuin, auditor, W. R. McKenzie & Son; Conrad P. Olson, vice-president of the State Bank of Portland.

At the Northwest Experiment Station of the United States Bureau of Mines, Seattle, Wash., an investigation is to be undertaken regarding the preparation of super-refractories by melting and treating clays in the electric furnace and preparing from these products refractory materials, chiefly brick. It is expected that simple fusion of the clay will improve its refractoriness. It is also expected that some iron and silica can be removed with a subsequent improvement in the refractoriness. This investigation, which is in cooperation with the University of Washington, will be conducted by C. E. Williams, superintendent Northwest Experiment Station; C. E. Sims, electrometallurgist, and Hewitt Wilson, ceramist, Bureau of Mines staff, and A. Lee Bennett, fellow of the University of Washington.

Activities of the Testing Engineers

Since the last meeting of the American Society for Testing Materials, a special committee has been appointed to study the physical properties of reinforcement bars, and tests to determine the effect of sulphur in rivet steel have been practically completed, a new committee on sheet steels has been organized and a study of the heat treatment of wrought iron is being made. The total membership of the society is now 3022 and the continued association activity is shown by the holding of meetings in September and October of no fewer than 13 committees. The 1922 annual meeting will probably again be held at Atlantic City, N. J., and in the latter part of June, in accordance with the wishes of the plurality of the members as expressed through a questionnaire.

The personnel of the special committee to conduct an investigation of the physical properties of plain and deformed concrete reinforcement bars is: E. E. Hughes, Franklin Steel Co.; R. L. Humphrey, consulting engineer, Philadelphia; A. E. Lindau, Corrugated Bar Co.; C. F. W. Rys, Carnegie Steel Co.; W. A. Slater, U. S. Bureau of Standards; J. J. Yates, Central Railroad of New Jersey.

The primary object of the investigation is the study of physical properties of steel reinforcement bars—plain, deformed and twisted—rolled from the four different grades now in commercial use, tested in the form as rolled and as machined specimens. The data obtained will serve as a basis for possible revisions of the society's specifications for reinforcement bars.

The joint committee on investigation of effect of phosphorus and sulphur in steel has nearly completed the tests outlined to determine the effect of sulphur in rivet steel. A meeting of the committee on tests was held at Watertown Arsenal, Watertown, Mass., on Oct. 22, to review the completed test data. It is planned to release the data for general publication in the technical press as soon as possible. Publication in completed form will be made through a technologic paper of the U. S. Bureau of Standards.

The work of securing material for investigation of sulphur in plates and structural shapes is now going forward. Beginning Oct. 25, the committee on manufacture was scheduled to witness at the Cambria Steel Co., Johnstown, Pa., the manufacture of a part of the steel in this group, of sulphur content of 0.03 to 0.08 per cent, with carbon, manganese and phosphorus as nearly constant as possible.

The U. S. Department of Commerce has published English-Spanish and English-French editions of some 61 A. S. T. M. specifications particularly applicable to export trade.

Sub-Committee XIV on tool steels is engaged in the preparation of tentative specifications for high speed tool steel. The immediate work of preparing these specifications has been delegated to a special committee consisting of L. H. Kenney, J. A. Mathews and M. E. McDonnell.

The new sub-committee on sheet steels was organized on Oct. 6. One of the first problems to be undertaken by the sub-committee is the definition of the different grades of sheet steel and the proper differentiation between sheet steel and plate steel as to thickness. The committee is under the chairmanship of J. M. Darke, General Electric Co., West Lynn, Mass.

The committee studying the heat treatment of wrought iron has outlined three possible lines of work: The relation of composition and heat treatment of wrought iron to its final physical properties; the prevalence of brittleness in wrought iron when heated to temperatures in the neighborhood of the critical range; and the influence of welding methods and heat treatment on the strength of welds. It has been decided to investigate the first of these.

The Standard Tank Car Co., Sharon, Pa., has been awarded a contract by the New York Central railroad to repair 250 box cars. This order is declared to be the forerunner of others of similar nature from the same source.

Mining Conferees to Meet Hoover

WASHINGTON, Nov. 8.—Committees appointed by the American Mining Congress will meet next Monday with Secretary of Commerce Hoover to consider plans for the improvement of conditions in the mineral industry. It is proposed that the industry co-operate with the Department of Commerce along the lines of other industries, by providing the Department with certain statistics and making known its problems, which the department may aid in solving.

Committees selected to confer with Secretary Hoover follow:

Metals: Walter Douglas, Phelps-Dodge Corporation, New York; Clinton H. Crane, St. Joseph Lead Co., New York; Sidney J. Jennings, American Smelting & Refining Co., New York; Marshall Evans, Eagle-Picher Lead Co., Chicago.

Coal: J. G. Bradley, president National Coal Association, Dundon, W. Va.; S. D. Warriner, Lehigh Coal & Navigation Co., Philadelphia; Thomas H. Watkins, Pennsylvania Coal & Coke Corporation, New York; Charles S. Keith, Central Coal & Coke Co., Kansas City; Albert J. Nason, Nason Coal Co., Chicago.

Petroleum: E. L. Doheny, Mexican Petroleum Co., New York; H. F. Sinclair, Sinclair Refining Co., New York; Walter Teagle, Standard Oil Co. of New Jersey, New York; George S. Davison, Gulf Refining Co., Pittsburgh; A. L. Beaty, Texas Co., New York.

Elected to Engineering Foundation

The election of Arthur Lucian Walker, professor of metallurgy in the Schools of Mines, Engineering and Chemistry of Columbia University, as a member of the board of Engineering Foundation, which is organizing industrial research on a nation-wide scale, was announced by the chairman of the board, Charles F. Rand, New York. Prof. Walker succeeds the late Dr. Joseph W. Richards, of Lehigh University, eminent metallurgist, who died recently. He will represent the American Institute of Mining and Metallurgical Engineers on the board of the foundation. He has been a professor of metallurgy at Columbia since 1908. In 1898 he invented the Walker mechanical casting machine for casting copper into refined shapes. In 1902 he invented a new system for electrolytic copper refining tank room arrangement. As a consulting metallurgist, specializing in copper, he has been connected with many large corporations. During 1917-1918 he was consulting metallurgist at large for ordnance in the War Department.

Producing Oil from Waste Shale

WASHINGTON, Nov. 8.—It has been publicly announced that the Staveley Coal & Iron Co., at Hardstoft, in Sheffield, England, consular district, has been successful in producing oil from the waste shale of its pit dumps. The resultant product is said to be from 30 to 40 gallons of crude oil to the ton of shale. The company began its experiments before the war, according to a report from American Consul William J. Grace, Sheffield, and has now reached the successful stage of these experiments. The operations in this instance were carried on at Hardstoft, near Chesterfield, where a flow of oil was struck previously. Only one of the many wells drilled is producing oil and it is considered doubtful whether drilling for oil in that district will become a commercial success.

It is said that the British government has spent more than £500,000 in experimenting at Greenwich, with a view to producing oil from shale, and that it has thus far been unsuccessful. Hence the success of the Staveley Coal & Iron Co. is a matter of great interest. If this company will be able to make the manufacture of oil and other by-products from pit dumps a successful commercial proposition, it will be an entirely new industry in that section of England. There are millions of tons of this waste lying in the pit dumps of Yorkshire, Derbyshire and Nottinghamshire.

Varied Views on Coal, Coke and Ore Rates

Hearing of Petition of Buffalo Iron and Steel Companies Before Interstate Commerce Commission Develops Sharp Difference of Opinion—Doubt as to What Action Will Be Taken

BY L. W. MOFFETT

WASHINGTON, Nov. 7.—Taking a broad sweep affecting rates on all raw materials used in the manufacture of pig iron, the petition of Buffalo iron and steel interests for reduction in rates on coal and coke was the object of a protracted informal hearing to-day before Director of Traffic W. V. Hardie of the Interstate Commerce Commission. The upshot of it was that the representatives of the carriers promised to make early reply to the request for lower rates. Representing iron and steel interests were prominent men from the Buffalo district, eastern Pennsylvania, Virginia, West Virginia, Cleveland, Toledo and Chicago. Because of difference of opinion developing among iron and steel interests themselves, it is a question whether reductions of fuel will be granted in the immediate future or whether the recent reduction of 28 per cent in rates on ore from Lake Erie ports will be automatically eliminated Dec. 31 and old rates restored. It is hoped, however, that regardless of the decision on this, a general reduction in freight rates will be made comparatively soon.

Differences as to Ore Rates

Varying views from iron and steel people related to the relationship of rates on coal and coke and ore. While some of those present urged that reduced ore rates be made permanent even if coal and coke rates are not changed, others insisted that if the latter are not reduced the old ore rates should be restored in order to maintain so-called relationship between these three commodities. N. L. Gray, representing the New York Central Lines, and J. B. Large, representing the Pennsylvania Railroad, the only two representatives of carriers who spoke, said that the issues brought out to-day developed into such a wide character, affecting the general rate structure, that it would be necessary to make a report of the meeting to executives with the hope of an early decision being returned to the commission and the iron and steel interests. Director Hardie said the hearing being informal, no order will be issued by the commission, but that he was sure it would take such action as it thought it should if relief is justified. Among the chief spokesmen for the Buffalo interests was President W. H. Donner, Donner Steel Co., who pointed out the investments of iron and steel industries in that district aggregate \$150,000,000, and were started prior to 1907 in reliance on continuation of relationship between ore rates from lower lake ports to interior furnaces and coal and coke rates from Pittsburgh, Connellsville and related districts to Buffalo. He said the lowering of ore rates without reducing coal and coke rates gave inland competitors an advantage to the extent of \$2,100,000, based on pig iron production of 3,000,000 tons in the Buffalo district, and he estimated that the cost to interior furnaces was cut 71c. on a ton of pig iron.

Urges Re-adjustment

C. A. Collins, vice-president Hanna Furnace Co., urged re-adjustment of ore rates to inland furnaces and fuel rates from producing regions to Buffalo which will retain the advantages natural to the Buffalo district. He claimed the Buffalo district, based on recent reduction in ore rates from lower lake ports to Buffalo, is entitled to a rate of approximately \$1.13 per ton on coal from Pittsburgh and \$1.57 on coke from Connellsville. Statements of Messrs. Donner and Collins were approved by President G. F. Downs, Lackawanna Steel Co., and similar expression made by W. H. Marsales, general traffic manager of the Wickwire-Spencer Steel Corporation, and W. W. Rogers, vice-president and secretary Rogers, Brown & Co.

C. L. Lingo, traffic manager Inland Steel Co., Chicago, said either the old ore rates from lower lake ports should be restored or fuel rates lowered and Chicago district given its natural advantage as to location. Henry S. Pickands, representing the Perry Iron Co., Erie; Toledo Furnace Co., Toledo; and Otis Steel Co., Cleveland, said the situation at Buffalo corresponds closely to that at Erie, Toledo and Cleveland, and asserted that high fuel rates leave interests he represents at a disadvantage. With others asking for reduction in rates on fuel urging it be made immediately, Mr. Pickands said ore reduction had stimulated shipments from docks, although N. L. Moon, traffic manager Alan Wood Iron & Steel Co., and also representing eastern Pennsylvania iron and steel interests, said the cut in ore rates had not caused the Alan Wood company to move any more ore than had been previously decided upon. He said the situation in eastern Pennsylvania is worse than at Buffalo, because of increase in rates on fuel, which was combatted by Buffalo interests. Mr. Moon also asked that rates on blast furnace raw materials be reduced to permit the iron and steel industry to resume normal business. He declared interests he represents would object if fuel rates were lowered to other competitive points without similar action being taken in behalf of eastern Pennsylvania iron and steel makers.

Sharp Discussion

More or less sharp discussion was led by J. P. Daly, traffic manager Donner Steel Co., when he stated that his company was not represented in the agreement to the cut in ore rates with the alleged understanding that reductions in fuel rates would not be sought for the present. Others present said they also were not represented, although they said carriers seemed to believe that such an arrangement had been entered into in behalf of the entire iron and steel industry. Robert Hula, assistant traffic manager Steel & Tube Co. of America, said the disadvantage to his company as a result of the ore rate cut for interior furnaces as distinguished from lake front furnaces should be offset by a reduction in rates on coal before anything else is done, but said the 28 per cent cut in coal rates would not remove discrimination.

Claiming rates on blast furnace raw materials to Virginia furnaces had increased an average of 376 per cent since 1914, Richard Peters, Jr., Virginia Pig Iron Association, said his association has been seeking relief for some time and must have it if Virginia furnaces are to compete with others. Charles E. Bell, Eastern Pig Iron Association, said freight rates on general commodities, including fuel, must be cut and opposed any advance on ore as had been suggested by some in case fuel rates are not lowered. Relationship will be greatly disturbed if that existing in 1917 is not restored, but if coal and coke rates stay where they are, ore rates from lower lake ports should be increased to the previous level, said J. M. Gross, traffic manager Bethlehem Steel Co. W. F. Morris, Weirton Steel Co., said he was in accord with the position of Buffalo interests, although his company was the only inland manufacturer, with possibly one exception, which was represented at the meeting and hauled all raw materials all-rail. He said if ore rates were too high, as was indicated by carriers by action in reducing them, then rates on coal and coke also are excessive. James A. Burden, Burden Iron Co., in a telegram sent to and read by President Donner, expressed belief that ore reductions discriminate in favor of the Pittsburgh district and that freight rates on fuel should be reduced.

GERMAN MARKET ACTIVE

Heavy Buying in All Lines—Prices Continue Upward—New Guiding Prices

(Special Correspondence)

BERLIN, GERMANY, Oct. 23.—Activity during the past week has been without parallel since the recent revival. Jobbers and consumers seemed to be animated by only one desire; to get any kind of material at any price before the dollar was quoted at 300 m. or more. The situation is best illustrated by the fact that customers are placing the same order with several works and jobbers. Works are swamped with orders, often for extremely heavy tonnages, and are pressed by the trade and consumers alike to open sales for the first quarter of 1922. Most of the mills stolidly refuse to meet buyers in this respect, so that some of the business is going to Belgian, French and Luxemburg works.

Raw material supplies have not suffered any interruption so far and as coke is no longer controlled and large tonnages are available, a number of idle blast furnaces will probably be blown in. The coal situation is different, but the petition for an increase of the works' coal quota is still being considered by the coal commissioner. The poor transportation is particularly affecting the limestone supply, the scarcity of which is being severely felt.

The ore market is sharing in the present boom. Stocks have been moving in good shape, but the low value of the mark is prompting buyers to give preference to inland ores or second grade foreign ores and high grade calcined ores. Difficulties are being encountered in the supply of Swedish ores. Baltic Sea freight rates are steadily rising and bottoms are not plentiful. North Sea and Baltic shipping lines are again charging rates in foreign currency. In the minette market, interest centers on Lorraine and Briey grades, the sales of which will henceforth be handled by a newly established organization at Essen which practically embraces the entire industry.

Demand for pig iron is keen but supplies are moving slowly. Consumers are protesting at alleged hoarding of stocks by the syndicate. The syndicate, on the other hand, charges consumers with stocking up in excess of actual requirements for speculative purposes. Production is to a certain extent affected by a strike at the Gelsenkirchen blast furnaces. Luxemburg furnaces are asking about 200 fr. for foundry iron and many cases are on record of German consumers having lately paid 1550 m. per ton, 300 m. above the syndicate price. Ferrosilicon, 45 per cent, is rather scarce, and brings 4500 m. per ton. The only German works to be considered for ferrosilicon, Knapsack-Stinnes, declines to accept orders. Blast furnace silicon, 10 to 12 per cent, is quoted at 2200 m. per ton, f.o.b. Oberhausen; ferromanganese at 5200 m. per ton. With the increased domestic demand, the volume of

foreign inquiries for pig iron is growing, Austria, Italy, the Balkan countries, and the Far East, especially Japan, being the principal buyers.

Semi-finished material was in heavy demand and experienced further price advances during the past week. The feature of the finished iron and steel market is a growing shortage of material. Increasing complaints are heard of works, resorting to the practice of rendering prices subject to revision in case of coal price, freight rate or other increases.

It is noteworthy that a fair portion of the output of structural shapes is being retained by the producers for use in plant extensions and new construction and the building market is also calling for large quantities. Mills specializing in railroad material are operating to capacity and are experiencing difficulty in meeting the demands of the State railroads for ties, as production has largely been adapted to more profitable business. Inquiries for mine rails are brisk and supplies are far from meeting the demand.

A feature of the sheet market is the improved demand for heavy gages. Mills are sold out until the end of February, but terms of delivery are less extended compared with other lines, 8 weeks being named for heavy sheets and 8 to 12 weeks for medium grades. For light plates, however, 5 to 6 months is being stipulated. Such is the activity in the wire market, where foreign orders predominate, that mills are not in a position either to quote prices or state when delivery can be effected.

The greater part of the wire nail output is finding its way abroad, particularly to Japan. Similar conditions obtain in the gas pipe market where mills are booked up for 5 to 6 months ahead and have to decline new business. Foreign requirements are mainly in the way of flanged pipes and boiler tubes. The oil and well pipe market is quiet, as demand has apparently been met. Although foreign shipments are very satisfactory, individual orders rarely exceed 500 tons. Domestic buying is primarily centered on gas pipes, locomotive, boiler and superheater tubes.

At a recent meeting of the Iron Control Federation, representatives of industry, trade and consumers drafted a guiding price schedule, effective from Oct. 20. In the meantime, labor has appealed to the Minister of Economics to re-introduce maximum prices, abolished in April of this year. The following quotations show current and guiding prices, per metric ton, with open-hearth material about 50 m. per ton higher:

	Current Price Marks	Guiding Price Marks
Billets	3,000	2,725
Sheet bars	3,000	2,790
Structural shapes	3,700	3,150
Bar iron	3,950	3,200
Hoop iron	4,150	3,585
Wire rods	4,000	3,500
Wire, drawn	5,100
Wire nails	7,600
Sheets, heavy	3,100	3,500
Sheets, medium	3,900	4,300
Plates, light	4,400	4,425

IMPROVED CONDITIONS

Melt of Ohio Foundries Increases—Pig Iron Stocks Reduced

CLEVELAND, Nov. 7.—Improved conditions in the foundry industry in Ohio were shown at a meeting of the Ohio State Foundrymen's Association held at the Winton Hotel, Cleveland, to-day. A chart compiled from reports of members indicated that their melt had increased from a low point for the year of 15 per cent Oct. 1 to 25 per cent Nov. 1. Foundrymen outside of those making machine tools and agricultural implement castings generally reported an improvement in orders. Stocks of pig iron in foundry yards declined from 80 per cent in August to 62 per cent Nov. 1. It was estimated that with scrap supplies and pig iron under contract and not yet delivered, foundries would have enough material to last for four months at the present rate of operations.

The pig iron contract form recently prepared by the National Association Purchasing Agents was approved, but the association took action favoring an additional clause providing that should there be a dispute between buyer and seller over the analysis of iron delivered, an impartial umpire be selected to determine the analysis.

William H. Barr, president National Foundries' Association, delivered an address discussing general conditions in foundries, costs, overhead, etc.; A. O. Backert, director of the American Foundrymen's Association, also spoke on business conditions. The association has increased its membership to 103 gray iron foundries.

The Wadsworth Electric Mfg. Co. held a sales conference Oct. 26 and 27 to discuss sales promotion, including the use of inclosed switches for the purpose of safety. G. R. Watson, formerly Cincinnati representative of the Crouse-Hinds Co., has assumed position as general manager of the Wadsworth company.

CONTENTS

Bessemer Plant of Steel & Tube Co.1199

Latest Developments in Design and Equipment of Addition to Mark Works for Manufacture of Pipe

Experiments in Industrial Co-operation1207

Solutions of Employer-Employee Relations Presented at Meeting of Academy of Political Science

Iron Industry's Message Favors Peace1209

Leaders Give Their Hearty Support to President Harding in His Effort to Limit Armaments—Earnest Denunciation of War

Conference on Industrial Cost Accounting1212

Contributions to Cost Questions Made at Second Annual Meeting of Industrial Cost Association

Gray Iron Castings from Electric Furnace1214

Displacing the Cupola—Present Electric Practice and Advantages Over Older Method—Comparative Cost

Reinforcing Steel for Road Use1222

Test Highway Built by Columbia Steel Co. to Study Methods of Reinforcement—Special Device for Laying Steel

Varied Views on Coal, Coke and Ore Rates1225

Petition of Buffalo Iron and Steel Companies Before Interstate Commerce Commission—Doubt as to Action to Be Taken

Buying Versus Being Sold.....	1206	Shippers Ask for Freight Cut.....	1221
Labor Notes	1208, 1220	Exports to Be Reclassified	1221
American Foundrymen's Meeting	1208	Refractories Demand	1221
Plant Operations	1213	To Make Charcoal Iron in Oregon.....	1223
Coming Conventions	1215	Activities of Testing Engineers.....	1224
Piston Grinding Machine	1216	Mining Conferees to Meet Hoover.....	1224
Fuel Economy in Iron and Steel Works	1216	Producing Oil from Waste Shale.....	1224
Superpower Report	1217	Foreign Trade Conditions.....	1226, 1244, 1247
Pending Freight Reductions	1217	Ohio State Foundrymen Meet	1226
Labor Cost in British Iron and Steel		Editorials	1228
Works	1217	Skilled Workers and Strikes—The	
Safety Cleaning Machine	1217	Check-Off—Course of Railroad Earn-	
American Merchant Marine Policy....	1218	ings—Intelligence Tests.....	
Canadian Customs Ruling Protested....	1218	Correspondence	1230
Drafting Aids to Manufacturers	1218	Buying Responsibility—Time for Con-	
Rates on Imported Manganese and		ciliation and Reasoning.....	
Chrome Ores	1218	October Steel Ingot Output.....	1231
Manganese Ore from Chile	1219	Transcontinental Freight Rates.....	1231
Indicator for Powdered Coal Bins.....	1220	To Dismantle Parts of Carnegie Sharon	
Inquiry As to Coal Stocks.....	1220	Works	1239
Iron Ore Shipments in October.....	1220	Open Price Associations.....	1243
Low Bids on Steel for Navy.....	1221	Industrial Finance	1245

Iron and Steel Markets.....	1322
Comparison of Prices.....	1323
Prices Finished Iron and Steel, f. o. b. Pittsburgh.....	1246
Non-Ferrous Metal Markets.....	1247
Personal Notes.....	1248
Obituary Notes.....	1249
Machinery Markets and News of the Works.....	1250
New York Jobbers' Prices.....	1258

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"Skilled Workers" and Strikes

The country did not have the chance to find out what the railroad companies could do in operating their lines in a time of strike, with the five big unions doing their best to produce a tie-up. It is well known that preparations were made and that many thousands of men had enrolled and would have taken the strikers' places. Much of this enrollment was carried on directly between the railroad managements and men who wanted the work, without any resort to agencies making a business of furnishing strike-breakers, as distinguished from reputable workers. There is good reason to believe that the railroads, had the strike order stood, would have been far from the state of helplessness which the union leaders had in mind.

Apart from the well-directed effort by companies whose heads have been conspicuous for the cultivation of friendly relations with their employees, enough was done on this and on other occasions to demonstrate how rapidly apt men could become efficient in certain railroad jobs. Forty-eight hours, and in many cases 24 hours, proved sufficient for the mastery of many kinds of work. There is trustworthy testimony to the excellent progress made by candidates for various positions, particularly those of firemen, brakemen and other lines of train service. Some of the traditions concerning the "experience" required in some of these forms of service and some of the reasons given in justification of the high wage schedules fastened upon the managements under Government control were rudely shaken by the facility new men developed in preparatory try-outs.

The experience was quite parallel with that of managers of certain tin plate mills when the Amalgamated Association some years ago staked its all on the issue of limitation of output and lost. The union's monopoly of "experience" was counted on to win, but the mills were soon filled with young men fresh from the countryside and they were never displaced.

The railroad strike in Great Britain in September, 1919, demonstrated that neither the rail-

road workers nor the railroads themselves are as indispensable to the life of the community as has been supposed. Mechanical progress since the railroad strike of 1877, of which Pittsburgh was the center, has changed the situation to a marked degree. Skilled mechanics are becoming constantly less indispensable, through the evolution of fool-proof machinery. The tendency is to bring machinery within the capacity of anyone possessed of average intelligence. Drivers of motor cars are now numbered by the millions, and as drivers of trucks and even locomotives they would have been an important factor in the defeat of the unions had the recently threatened strike been declared. One of the greatest services of the British strike of 1919 was in proving how competent the ordinary untrained individual can become in carrying out the duties of the so-called "skilled workers." That demonstration stands both as assurance to the public and as deterrent to workers who would lightly lay hold of the weapon of a strike against the people.

The "Check-Off"

The "check-off" required in the United Mine Workers' wage scale for bituminous coal mines, whereby initiation fee, fines and monthly dues of all employees of the classes covered by the scale are deducted from the payroll and remitted in lump sum to the district organization, has been brought vividly to public attention by the injunction against it issued last week by Judge A. B. Anderson in the federal court at Indianapolis. Legally the matter hangs in the balance, as the court of appeal has granted an appeal and stay of execution to Nov. 16, but in any event the subject will not be forgotten.

The check-off is the chief support of the United Mine Workers. This is no new discovery. In the leading editorial in THE IRON AGE of Feb. 24, 1921, under the caption "Three Great Monopolies" it was said: "There are three great monopolies in the United States—the United Mine Workers, supported by the check-off; the railroad unions, supported by conditions created by the

United States Government, and the various building trades unions, supported by the fact that the building owner is a different man each time, and does not care to make a contest for the benefit of the next man."

The unique character of this check-off practice is seen in the fact that it was adopted some 20 years or more ago, under conditions it would require an antiquarian to elucidate now, and that it does not exist in any other line of employment. Usually it is a good rule, in determining what is fair and right conduct, to ask what would be the result if everyone did the thing. In this matter of the check-off, one may inquire what would result if every labor union, as soon as it got a foothold, were granted the check-off, so that membership in the union became compulsory, being in fact automatic upon the acceptance of employment, and payment of dues to the officials in possession became perfect. The samples that have been furnished indicate that industry could not bear the load.

The rule can be tried out further. Suppose that all purchasers of tin plate, just for illustration, were required to deduct 2 per cent from every tin plate invoice they paid and remit the total to the officials of the Tin Plate Makers' Union, who would use the funds to get non-union tin plate mills into the fold. Suppose that when anything occurred that did not suit the taste of these officials they would close the mills, allowing tin plate and canned goods to become scarce so that a starving public would pay more for canned goods and enable the packers to pay almost any price asked for tin plate.

The case is parallel in its general principles and in its effect upon the public. Where it is not parallel is in the law, for the Sherman law interdicts curtailment of production by agreement between manufacturers, while strikes by workmen aimed at curtailing production of coal or other commodities, or curtailing the service of trolley lines or railroads, to the direct injury of the public, have escaped the law.

There is a strong probability that, irrespective of the eventual legal fate of Judge Anderson's injunction against continuance of the check-off, the practice will be stopped. There is little likelihood in any event that the check-off will be included in any bituminous wage scale agreed upon for the period after the present scale expires March 31, 1922. The United Mine Workers can live without the check-off, but if it could not it would not deserve to live. The public will receive better service, and will be relieved of one of the three great monopolies which have been largely responsible for the unsatisfactory condition of industry for months past.

Severe as has been the decline in the pig iron and steel production of the leading producing countries, there is one interesting exception. The French pig iron and steel output has consistently maintained itself on practically a level with that of 1920. For the first eight months of this year, the average pig iron and steel ingot production has been virtually the same as the monthly average for 1920. While

production early in the year was larger than in more recent months, even the August output was but slightly below that of the 1920 monthly average in both pig iron and steel. This is by no means true of the United States, Great Britain or Belgium; in all three the declines after the first quarter were severe and the later recovery still leaves production far below the 1920 average. The French showing is only in part due to exports; it is to be viewed also in the light of heavy home consumption following the war.

The Course of Railroad Earnings

Comparisons of monthly earnings of the railroads frequently fail to be illuminating because there are natural seasonal variations which mask the fluctuations due to changes in the general commercial situation and changes in the position of the railroads. To avoid reflection of these seasonal variations comparisons are sometimes made with the corresponding month of the preceding year, and to that method also there are obvious objections. In particular, a comparison of earnings last August with earnings in August, 1920, fails entirely to show anything except the fact that the "back pay" awarded employees in the Railroad Labor Board's decision late in July of last year was all charged to operating expenses in August.

The proper method to study monthly railroad earnings is by reference to a standard allocation of the year's earnings to months. The Bureau of Railway Economics adopts the system of dividing the expected 6 per cent annual return upon tentative valuation among the months according to the relative earnings the months showed during the three-year test period ended June 30, 1917. The following table gives the earnings reported in each of the first eight months of this year, by Class I roads and large switching and terminal companies, the requisite monthly earnings on a 6 per cent annual basis, and the actual rate of earning:

Railroad Earnings in 1921

	Required on 6% Basis	Earnings Reported	Rate of Earning
January	\$67,272,000	\$958,399*	0.1*
February	56,599,000	7,378,207*	0.8*
March	81,089,000	30,695,192	2.3
April	80,487,000	29,248,874	2.2
May	92,736,000	37,080,654	2.4
June	99,073,000	51,641,014	3.1
July	93,203,000	69,298,521	4.5
August	108,000,000	90,241,103	5.0

*Deficiency.

While the three-year test period is not an absolute criterion it is adequate for the purpose, and the wide fluctuations month by month in the amounts to be expected under what may be called uniform conditions are impressive. It becomes obvious that mere comparison of the quantity of earnings in one month or another this year does not really indicate what has been occurring. Comparison of the rates shown in the last column in the above table with a rate of 6 per cent shows approximately the proportion in which railroad earnings fell short of the gait that would produce a 6 per cent total for the year.

From January to February there was a recession, also a slight recession from March to April. Otherwise railroad earnings improved through the

month of August. Even August, however, showed only five-sixths of the proper return.

The comparison shows two things: First, that railroad earnings have been improving and by August had made a close approach to the expected rate. Second, that no increase in earnings can be expected such as would within a reasonable length of time make up the deficiency that has accumulated. While August showed the best rate of earnings in the eight months of the year, it did not decrease the deficiency, but added to it, the rate being 5 per cent, or one per cent under 6 per cent. Plainly it is on account of the accumulated deficiency that railroad officials are so anxious to postpone rate reductions. They would like to make up something—anything they can.

The detailed reports showing expenditures for maintenance month by month do not indicate the extreme skimping that has been suggested from the railroad side of this argument about rates. The figures do not indicate that the change from a large deficit in February to a 5 per cent rate of earnings in August was produced chiefly or even largely by such a route.

Intelligence Tests

During the war an important factor in the selection of certain officers of the army was the standing they made in so-called intelligence tests. These consisted in part of a set of questions which the enlisted men had to answer almost spontaneously. The grading depended on the accuracy and quickness of the answers, which were presumed to reveal not only the man's general intelligence and keenness of memory but also his ability to make quick and dependable decisions. As practiced it was not all that was claimed for it, but in the main the results were considered satisfactory as giving a line on a man's average brain power.

A modification of the war-time intelligence test is being used in a number of technical schools, the original having found its way into such institutions during the war. One of the largest American universities has found beneficial results from its application to one of its departments. A large Middle Western technical school has used since the war what it calls an intelligence test and some interesting results are reported. All students from freshmen to seniors are subjected to this test each year. From the results the faculty have formed a judgment of each man's "quality of brain." As the students progress through their respective courses it is declared possible to judge whether one who has not made a satisfactory grade can really ever be expected to graduate, or whether he has exercised his full ability. It has been possible in many cases to advise students whether to continue or to drop out.

An interesting development is that in the technical school referred to the average standing or grade based on these tests is practically the same for each class each year. It also appears that the new freshman class, entering this year, has a standing 10 to 12 points higher than that of any freshman class since the scheme was first tried. A distinct letting down was plainly noticeable in the two years just following the war.

The new practice is to be differentiated from the

famous Edison questionnaire, which is designed largely to measure an applicant's memory and general reading. In the schools that have pioneered in the movement there is faith that it will become an important factor in educational work. Certain psychological principles are involved which need further study and application. There is the possibility, too, that a similar scheme properly elaborated may come to be used by employers in judging the caliber of men who are in line for larger responsibilities.

Secretary of Agriculture Wallace has suggested that with corn netting the farmer 20 cents per bushel or less and coal costing him \$10 per ton, the corn will furnish the cheaper fuel both to the farmer and to the dweller in country towns in the corn belt. That illustrates vividly how the farmer is cut both ways by high freight rates. His net on whatever he sells will not give him back his cost, because of the freight that comes off the price at his marketplace, and the prices of the things he would buy are so high, because of excessive freights, that he must get along without them.

CORRESPONDENCE

Buying Responsibility

To the Editor: There appears on page 1139, Nov. 3 issue, an article by John J. Ralph, entitled, "Buying Responsibility."

This is one of the most practical and clearly set forth statements of facts on this subject I have ever read. Please convey my appreciation to the author.

H. C. PEARCE,

Director of Purchases and Stores,
Chesapeake & Ohio Railway Co.

Richmond, Va., Nov. 5.

A Time for Conciliation and Reasoning

To the Editor: Nothing like an entente cordiale prevails between labor and management. Management has not forgotten that organized labor during the war days exacted all that the traffic would bear. Management is resentful.

Heedless of the necessity for accelerating liquidation so as to hasten the return of normal conditions, labor is giving indubitable evidence of its intention to hold most of the advantages obtained during the stress of war. When necessity compels, the unionists retreat, but the line of retreat probably is studded with grudges. Indeed, it may be surmised that in those cases where labor has been forced to give ground, the first propitious opportunity to recover that which has been lost, will be capitalized.

Management proclaims that profits of industry have been whittled down to the little end of nothing, while labor asserts that it cannot permit a full squeezing out of war inflation, inasmuch as the cost of living has not descended to the extent of more than a few farthings.

Without holding a brief for either interest, an on-looker from the side lines may be permitted to venture the statement that the country needs industrial statesmen rather than industrial warriors. Bandyng words only serve to beget intolerance. Ruthless warfare, no matter how well conducted by the encamped generals of labor or management, will not hasten the processes that make for economic repair.

At this time when wages must follow the general trends of the market places and when organized labor is losing its potency, management has a golden opportunity to show labor that it is intent upon exemplify-

ing the square deal. Now is the time for both employer and employed to abide by the counsels of fairness and to establish mediums for the free interchange of views with the object of fostering co-operation.

With co-operative organizations in every plant, with representatives of the employers and employed sitting together at council tables freely discussing conditions, intolerance would in due time give way to forbearance and understanding.

The task is one that calls for constructive industrial forces, not destructive industrial warriors.

JAS. J. MCCABE.

2 Rector Street, New York.
Nov. 3.

Large Gain in October Steel Ingot Output

The steel ingot statistics of the American Iron and Steel Institute show that 30 companies, which in 1920 produced 84.20 per cent of the total, had an output in October of 1,616,810 gross tons as compared with 1,174,740 tons in September, with 1,138,071 tons in August and with 803,376 tons in July. The October increase over September was 442,070 tons, or 37.6 per cent. The increase in September over August was about 3 per cent. Estimating the production of other companies on the basis of the 30 reporting (though it is probable the small companies did not equal the rate of the larger ones) the total output of ingots in October was 1,920,202 tons, or 73,854 tons per operating day, counting 26 working days in October, against an estimated total of 1,395,178 tons or 54,713 tons per day in September. This is an increase of 525,024 tons or 19,141 tons per day. In the table below the output of Bessemer and open-hearth works is separated and the figures for 1920 by months are included:

Monthly Production of Steel Ingots by 30 Companies Which Produced About 84.20 Per cent of Total in 1920—Gross Tons

	Open Hearth	Bessemer	All Other	Total
January, 1920...	2,242,758	714,657	10,687	2,968,102
February	2,152,106	700,151	12,467	2,865,124
March	2,487,245	795,164	16,640	3,299,049
April	2,056,336	568,952	13,017	2,638,305
May	2,251,544	615,932	15,688	2,883,164
June	2,287,273	675,954	17,463	2,980,690
July	2,135,633	653,888	13,297	2,802,818
August	2,299,645	695,003	5,784	3,000,432
September	2,300,417	693,586	5,548	2,999,551
October	2,335,863	676,634	3,485	3,015,982
November	1,961,861	673,215	3,594	2,638,670
December	1,687,162	649,617	3,586	2,340,365
Total, 1920...	26,197,843	8,112,753	121,656	34,432,252
January, 1921...	1,591,281	608,276	3,629	2,203,186
February	1,295,863	450,818	2,796	1,749,477
March	1,175,591	392,983	2,404	1,570,978
April	1,000,053	211,755	2,150	1,213,958
May	1,047,810	216,497	1,543	1,265,850
June	808,286	193,644	1,476	1,003,406
July	689,489	113,312	575	803,376
August	915,334	221,116	1,621	1,138,071
September	908,381	265,152	1,207	1,174,740
October	1,269,945	345,837	1,028	1,616,810

The October ingot production was at the yearly rate of 22,968,594 tons, counting 311 operating days to the year. This compares with a rate in September of nearly 17,000,000 tons, in August of 15,568,660 tons and in July, the low point, of 11,857,186 tons. The October production was therefore about twice that of July.

The increase of 525,024 tons in the estimated ingot output of all companies in October over that in September compares with an increase of about 250,000 tons in the October pig iron output over that of September.

The Youngstown Welding Co., Youngstown, Ohio, has purchased a three and one-half acre tract along the right-of-way of the Youngstown & Austintown Railroad, now under construction, and plans the erection of a model plant early next year. The company plans ultimate construction of three structural steel buildings, each 100 x 298 ft., one of which will be constructed in 1922. It is engaged in fabricating oil and other storage tanks, general tank work and light plate construction.

TO REDUCE FREIGHT RATES

Amendment of Proposed Reductions Filed with Interstate Commerce Commission

WASHINGTON, Nov. 8.—An amendment, which affects iron and steel along with other products, has been filed with the Interstate Commerce Commission in connection with the application made on Aug. 22 to reduce westbound transcontinental freight rates and contains additions, eliminations and changes in the original application. Sucker rods and sucker rod joints in bundles have been eliminated. On the other amended items, as they relate to iron and steel, reductions have been made. On cast iron pipe and connections, for instance, it was proposed originally to substitute for the present rates, which range from \$1.17½ to \$1.83½ per 100 lb., a rate of \$1.25 from all Eastern groups to the Colorado section, with a minimum of 40,000 lb., and to apply a rate of \$1 with a 60,000-lb. minimum. In the amended application, the rates proposed are \$1.15 with the higher and 90c. with the lower minimum.

Changes proposed on iron and steel products, per 100 lb., follow:

Article, Carload	Present Rate Range	Rate Originally Proposed and Origin Groups	Rate Now Proposed and Origin Groups
Pipe bands and rods, etc.	\$1.17½ - \$1.83½	1.25 A to H 1.17½ J	1.20 A to H 1.17½ J
Link belting chain, etc.	1.33 - 1.83½	1.25 A to J 1.00 A to C	1.20 A to J 0.90 A to J
Billets, blooms, etc.	1.17½ - 1.83½	0.90 D to J	
Butts and hinges.	1.33 - 1.83½	1.35 A to H	1.25 A to J
Rough cast'gs, etc.	1.33 - 1.83½	1.25 A to J	1.20 A to J
Pig iron, etc.	0.72 - 1.00	0.90 D to H 0.72 J	0.75 D to H 0.72 J
Boiler flues, etc.	1.17½ - 1.83½	1.25 A to H	1.25 A to E
Nails, spikes, etc.	1.17½ - 1.83½	1.00 A to J	0.90 A to J
Horseshoe nails, boxed	1.33 - 1.83½	1.25 A to J	1.20 A to J
Cast-iron pipe and connections	1.17½ - 1.83½	1.25 A to J *1.00 A to J	1.15 A to J *0.90 A to J
Pipe fittings, etc.	1.25 - 1.83½	1.15 A to J 50,000-lb. min.	1.05 A to J 60,000-lb. min.
Open seam tubing	1.42 - 1.83½	1.25 A to E	1.25 Gr. H
Wire and wire goods	1.17½ - 1.83½	1.00 A to J	0.90 A to J

*60,000-lb. minimum.

†Rate extended to cover movement to north Pacific coast terminals.

Explanatory.—A, includes eastern groups; C, Indianapolis-Detroit section; D, Chicago and Middle West; E, St. Louis section; H, western Kansas-Nebraska; J, Colorado section.

Hearings on the application will begin soon in Chicago before Examiner Disque.

The Iron Age and Its Readers

The series of articles in THE IRON AGE by Henry D. Hibbard, one of the best known of consulting metallurgists in steel, will be worth the careful attention of all our readers who have to do with steel production. These articles appear under the title "Leaves from a Steel Melter's Notebook," and the first of them was printed in our issue of Oct. 27, dealing with the making of hollow ingots for seamless pipe. The second, which will appear this month, is on the "Design of a Structure to Resist Shock or Overstrain."

The appearance of a labor union as a salesman getting business anywhere is most unusual, and the efforts of the International Association of Machinists to book orders in Mexico and other countries south of the United States are interesting. Some complaint has been made by machine tool manufacturers that unfair methods have been adopted. Secretary-Treasurer Davidson of the International Association of Machinists gave his version of what has been done in an interview with the Washington representative of THE IRON AGE in the issue of Nov. 3. It is worth reading.

Iron and Steel Markets

RAILROAD BUYING

Rail Inquiry for 1922 and Orders for Cars

Heavy Products More Commonly 1.50 Cents— Large Tin Plate Contracts—Freight Reduction

Railroad inquiry for rails for 1922 and what may be the beginning of better buying of cars have appeared in the past week. Otherwise the chief developments in the steel market have been tin plate contracts for the first half of next year and some good business in wrought pipe.

The tin plate buying came after a reduction in price on Nov. 3 to \$4.75 per box and was in volume sufficient to insure a large operation of tin plate mills through the winter. Can makers bought for the first half of 1922 and jobbers for the first quarter.

Rail inquiries for next year include 100,000 tons for the New York Central, with a possible 200,000 tons, also 40,000 tons for the Norfolk & Western. The Pennsylvania Railroad is considering a 1922 quota of 150,000 tons. Thus far the leading interest has booked 120,000 tons of rails since the \$40 price was named.

Orders for 2500 cars for the St. Paul represent 29,000 tons of steel. The Western Pacific has placed 1000 steel cars and the Lackawanna 500 box cars. The Illinois Central inquiry is for 4000 cars and three car repair orders pending at Chicago foot up 1500. In locomotives the Southern Pacific order for 50 is conspicuous.

Steel production in October was 1,616,810 tons of ingots by the 30 companies reporting, or more than double the 803,376 tons produced by the same companies in July. The October increase over September steel output was 37 per cent, whereas pig iron output in October was but 22 per cent more than in September. The Steel Corporation's schedule this week represents 51 per cent of capacity.

Price developments reflect the effort some producers are making to hold operations to the larger scale recently reached. On the heavier products 1.50c., Pittsburgh, is more frequently quoted; the sheet market is drifting lower and adherence to the Sept. 16 card on tubular products is not rigid. In the wire trade, while a fair business has been done at \$2.90 for nails, the establishment of a higher price is not imminent.

The expectation of steel producers is centering on Jan. 1 as the probable date of a freight rate reduction. If this should prove to be 15 per cent it would represent about \$2 lower cost per ton of steel in the Central West.

At Washington Monday's hearing on the petition of Buffalo iron and steel companies for lower coal and coke rates let loose a flood of counter-petitions, showing that the recent 28 per cent reduction in iron ore freights had shaken the whole rate structure. Lower lake front blast furnaces seek the reduction on coal and coke because of the advantage interior furnaces secured from the cut in ore rates.

Conspicuous items in new fabricated steel

projects totaling 18,000 tons are 6200 tons for strengthening a Boston & Maine bridge, and a railroad bridge at Kansas City. The awards of the week amount to about 15,000 tons in sizable projects, including 3600 tons for oil tanks. Additional oil tank work calls for 4000 tons of plates. The Jamaica Boulevard in New York will probably take 7500 tons of bars and the successful bidder quoted 1.50c., Pittsburgh.

Weakness has developed in the pig iron market, particularly in Buffalo, Cleveland and Birmingham, and concessions of from 50c. to \$1 per ton are reported.

The ferromanganese market is interesting for its recent indications that domestic producers are making prices to hold their full share of the trade, also for the occasional reappearance of the Steel Corporation as a seller. At \$60, Pittsburgh, and in some cases less, for the domestic product British ferromanganese at \$58.35, Baltimore, is not competitive.

Heavy melting steel scrap is more active and higher. Recent prices have been enough below pig iron to increase the use of scrap as against pig iron at open hearth plants.

Reports to a convention of Ohio foundrymen at Cleveland, Nov. 7, showed that from the year's low point of a 15 per cent operation on Oct. 1 the industry had gone to 25 per cent on Nov. 1. In all foundry lines except implement and machine tool castings better orders were reported.

Shipments of Lake Superior ore by lake up to Nov. 1 were 21,894,275 tons. The movement for the season, not including all-rail, is estimated at 21,100,000 tons, or the smallest since 1904.

Though the upward turn in production came in July, further price deflation on the present movement is recorded for this week. THE IRON AGE composite for finished steel now stands at 2.134c. per lb., or less than 27 per cent above the average for ten years before the war.

Pittsburgh

PITTSBURGH, Nov. 8.

Downward slant of demand, coupled with the anxiety of the steel manufacturers to keep their plants running as full as possible, is reflected in sharper competition for business and a weaker tendency in prices. Particularly is the condition true of the heavier products in which there has been more frequent quoting of 1.50c., Pittsburgh. The sheet market still is drifting lower and adherence to the Sept. 16 card on tubular goods is not especially rigid. While the Steel Corporation subsidiaries do not appear to be leading in any of the price recessions which recently have taken place they are at least meeting those made by the independents. The market seemingly is a more open one now than it has been before since midsummer.

In line with a report in these columns last week, the American Sheet & Tin Plate Co. last Thursday opened its books for first quarter and first half tonnages, naming a price of \$4.75 per base box. There had been a rather strong effort on the part of independent makers to stabilize the market on a base of \$5, but with the announcement of \$4.75 by the leading interests, all makers have adopted that quotation.

The market in pig iron has become utterly stagnant and prices are purely nominal in the absence of either

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	Nov. 8,	Nov. 1,	Oct. 11,	Nov. 9,
	1921	1921	1921	1920
No. 2X, Philadelphia...	\$22.84	\$22.84	\$21.84	\$47.79
No. 2, Valley furnace...	21.00	21.00	21.00	41.00
No. 2, Southern, Cin'ti...	23.50	23.50	23.50	42.50
No. 2, Birmingham, Ala...	19.00	19.00	19.00	38.00
No. 2 foundry, Chicago...	21.00	21.00	21.00	40.00
Basic, del'd, eastern Pa...	20.50	20.50	20.50	44.46
Basic, Valley furnace...	19.00	19.00	19.25	38.50
Bessemer, Pittsburgh...	21.96	21.96	21.96	43.96
Malleable, Chicago...	21.00	21.00	21.00	40.50
Malleable, Valley...	20.50	20.50	20.50	42.00
Gray forge, Pittsburgh...	21.96	21.96	21.96	41.96
L. S. charcoal, Chicago...	31.50	31.50	31.50	53.50
Ferromanganese, del'd...	60.00	60.00	60.00	150.00

Rails, Billets, etc., Per Gross Ton:	Nov. 8,	Nov. 1,	Oct. 11,	Nov. 9,
	1921	1921	1921	1920
O.-h. rails, heavy, at mill...	\$40.00	\$40.00	\$47.00	\$57.00
Bess. billets, Pittsburgh...	29.00	29.00	29.00	50.00
O.-h. billets, Pittsburgh...	29.00	29.00	29.00	50.00
O.-h. sheet bars, P'gh...	30.00	30.00	30.00	60.00
Forging billets, base, P'gh...	35.00	35.00	35.00	60.00
O.-h. billets, Phila...	34.74	34.74	35.74	60.74
Wire rods, Pittsburgh...	40.00	40.00	41.00	70.00
Skelp, gr. steel, P'gh, lb...	1.60	1.60	1.60	3.25

Finished Iron and Steel,	Nov. 8,	Nov. 1,	Oct. 11,	Nov. 9,
	1921	1921	1921	1920
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia...	1.95	1.95	1.95	4.85
Iron bars, Chicago...	1.75	1.75	1.75	3.75
Steel bars, Pittsburgh...	1.50	1.50	1.60	3.00
Steel bars, Chicago...	1.75	1.75	1.75	3.38
Steel bars, New York...	1.80	1.80	1.98	3.38
Tank plates, Pittsburgh...	1.50	1.60	1.60	2.85
Tank plates, Chicago...	1.75	1.75	1.75	3.23
Tank plates, New York...	1.88	1.88	1.98	3.38
Beams, Pittsburgh...	1.50	1.60	1.60	3.00
Beams, Chicago...	1.75	1.75	1.75	3.38
Beams, New York...	1.88	1.88	1.98	3.38
Steel hoops, Pittsburgh...	2.25	2.25	2.25	4.50

Sheets, Nails and Wire,	Nov. 8,	Nov. 1,	Oct. 11,	Nov. 9,
	1921	1921	1921	1920
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh...	2.90	2.90	3.00	6.00
Sheets, galv., No. 28, P'gh...	3.90	3.90	4.00	7.50
Sheets, blue an'd, 9 & 10...	2.25	2.25	2.25	4.75
Wire nails, Pittsburgh...	2.90	2.90	2.90	4.25
Plain wire, Pittsburgh...	2.60	2.60	2.60	3.75
Barbed wire, galv., P'gh...	3.55	3.55	3.55	4.45
Tin plate, 100-lb. box, P'gh...	\$4.75	\$4.75	\$5.25	\$7.50

Old Material, Per Gross Ton:	Nov. 8,	Nov. 1,	Oct. 11,	Nov. 9,
	1921	1921	1921	1920
Carwheels, Chicago...	\$16.00	\$16.50	\$16.50	\$33.00
Carwheels, Philadelphia...	17.50	17.50	17.00	39.00
Heavy steel scrap, P'gh...	14.50	14.50	14.00	25.00
Heavy steel scrap, Phila...	12.00	12.00	12.00	20.00
Heavy steel scrap, Chicago...	12.00	12.00	12.25	18.50
No. 1 cast, Pittsburgh...	17.50	17.50	17.50	35.00
No. 1 cast, Philadelphia...	17.50	17.50	17.00	36.00
No. 1 cast, Ch'go (net ton)	13.75	13.75	13.50	22.00
No. 1 RR. wrot., Phila...	16.50	16.00	16.00	26.00
No. 1 RR. wrot., Ch'go (net)	12.50	12.50	13.00	16.50

Coke, Connellsville, Per Net Ton at Oven:	Nov. 8,	Nov. 1,	Oct. 11,	Nov. 9,
	1921	1921	1921	1920
Furnace coke, prompt...	\$3.00	\$3.10	\$3.35	\$8.00
Foundry coke, prompt...	4.25	4.25	4.50	9.00

Non-Ferrous Metals,	Nov. 8,	Nov. 1,	Oct. 11,	Nov. 9,
	1921	1921	1921	1920
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York...	13.25	13.12 1/2	13.12 1/2	15.00
Electrolytic copper, N. Y.	12.75	12.75	12.82 1/2	15.00
Zinc, St. Louis...	4.75	4.55	4.60	6.80
Zinc, New York...	5.25	5.05	5.10	7.25
Lead, St. Louis...	4.40	4.40	4.50	6.50
Lead, New York...	4.70	4.70	4.70	6.75
Tin, New York...	28.02 1/2	28.00	27.00	37.00
Antimony (Asiatic), N. Y.	4.75	4.75	5.00	6.25

*The average switching charge for delivery to foundries in the Chicago district is 70c. per ton.

†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

The prices in the above table are for domestic delivery and do not necessarily apply to export business.

Composite Price, Nov. 8, 1921, Finished Steel, 2.134c. Per Lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets	Nov. 1, 1921, 2.163c. Oct. 11, 1921, 2.236c. Nov. 9, 1920, 2.653c. 10-year pre-war average, 1.684c.
These products constitute 88 per cent of the United States output of finished steel.	

Composite Price, Nov. 8, 1921, Pig Iron, \$19.97 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham	Nov. 1, 1921, \$19.97 Oct. 11, 1921, 19.93 Nov. 9, 1920, 40.22 10-year pre-war average, 15.72
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inquiries or sales of a size sufficient to provide a real line on what could be done. Production is light but yet sufficient for requirements, and it is the prevailing idea that less than \$19, Valley furnace, could be done on basic iron and that \$21, Valley furnace, would be shaded on desirable business.

The scrap market does not appear to be as strong as it was recently and the fuel market is decidedly soft. The strike of the union coal miners on the "check off" issue has been avoided and it is the opinion that there will be no trouble during the winter. It is believed that the Federal Court of Appeals will be in no hurry to hand down a decision as to the legality of the injunction granted by Federal Judge Anderson, in Indianapolis, and if the question is not re-opened in the near future it is probable that the mines will be kept in operation at least until the operators and miners get together in February to work out a new wage scale.

There has been little change one way or another in plant operations in this and nearby districts. The Carnegie Steel Co. has between 35 and 40 per cent of its ingot capacity in operation and 40 per cent is a fair estimate of independent activities, taking in Pittsburgh, Wheeling and the Valley districts. The Carnegie Steel Co. last week blew in a blast furnace at its New Castle, Pa., works and will blow in one of the Carrie group this week. Of the 140 furnaces in this and nearby districts, 45 now are in blast.

Pig Iron.—There is an utter dearth of sales and inquiries are few and far between. We hear of occasional carloads of foundry iron being moved on a base of \$21, Valley furnace, for No. 2 grade, but there is almost no interest in next year's requirements. Almost nothing is being done in Bessemer iron and activities in basic have to do largely with efforts on the part of brokers to move some resale lots or to secure bids slightly below current quotations, in the expectation of finding some producer who will accept the business.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being \$1.96 per gross ton:

Basic	\$19.00
Bessemer	20.00
Gray forge	20.00
No. 2 foundry	21.00
No. 3 foundry	20.50
Malleable	20.50

Ferroalloys.—Consumers are in the market only occasionally and then for merely their immediate requirements. A West Virginia steel maker recently closed for 100 tons of ferromanganese, 50 tons of 77 per cent manganese content, and 50 tons of 80 per cent material, the average price being slightly above \$60, delivered. The nominal quotation of both American and English makers of ferromanganese is \$58.35 seaboard, for 80 per cent, but that price also has been named at furnace by one American maker. Nothing has been done in spiegeleisen since the recent sale of 200 tons

at \$30, delivered, to a Youngstown steel-maker. Interest in 50 per cent ferrosilicon is low, only a few carloads being sought. This material is quotable at \$55 to \$57, furnace, freight allowed. It is reported here that the General Electric Co., which bought 300 tons of 75 per cent ferrosilicon, paid \$92, packed in wood, delivered, Brackenridge, Pa., and not \$112 as was reported by some publications.

We quote 78 to 82 per cent domestic ferromanganese at \$60 delivered; 78 to 82 per cent foreign ferromanganese, \$53.28 to \$55, c.i.f. Atlantic seaboard. We quote average 20 per cent spiegeleisen at \$30 delivered, Pittsburgh or Valleys; 50 per cent ferrosilicon, domestic, \$55 to \$57, freight allowed. Bessemer ferrosilicon is quoted f.o.b. Jackson and New Straitsville, Ohio, furnaces as follows: 10 per cent, \$38.50; 11 per cent, \$41.80; 12 per cent, \$45.10; 13 per cent, \$49.10; 14 per cent, \$54.10; silvery iron, 6 per cent, \$27; 7 per cent, \$28; 8 per cent, \$29.50; 9 per cent, \$31.50; 10 per cent, \$33.50; 11 per cent, \$36; 12 per cent, \$38.50. The present freight rate from Jackson and New Straitsville, Ohio, into the Pittsburgh district is \$4.06 per gross ton.

Billets, Sheet Bars and Slabs.—The market remains inactive and if there is a definite trend to prices, it is down. Soft 4-in. billets are available as low as \$29 and efforts to raise the price of sheet bars have not succeeded. The latter are quoted by most makers at \$32, but with sheet prices weakening and tin plate officially down \$5 to \$10 per base box, non-integrated makers cannot "see" sheet bars at higher than \$30. Slabs are stagnant and only occasional inquiries are coming out for forging billets.

We quote 4 x 4 in. soft Bessemer and open-hearth billets at \$29 to \$30; 2 x 2-in. billets, \$30 to \$32; Bessemer and open-hearth sheet bars, \$30 to \$32; slabs, \$30 to \$31; forging billets, ordinary carbons, \$35, all f.o.b. Youngstown or Pittsburgh mills.

Wire Rods.—With specifications on wire products falling short of contract tonnages and other users of rods still finding business rather slow, interest in them is small. The market not only is dull but unsteady, as frequent failure by those quoting \$40 and \$41 base, to obtain orders on inquiries makes it certain that some makers are accepting less. The higher figure has not been and evidently cannot be obtained, and accordingly omit it from our quotations. Prices are given on page 1246.

Wire Products.—Specifications on contracts for nails are coming in fairly well, but it is admitted that only in rare instances are jobbers ordering out their full quotas. In other wire products, the difference between the contracts and the specifications is even more marked. Lack of demand from agricultural sources still is commented upon, although there are some fence makers who are making up stocks against the spring demands and are taking out fairly full wire allotments. Prices are still uncertain. There is talk that the American Steel & Wire Co. is planning on a horizontal increase of \$2 per ton, instead of advancing nails \$3 per ton and wire \$2 per ton, as was done in September. The probable date of the advance interests the trade. The more common opinion is that the general demand is not broad or strong enough to stand an advance.

We quote wire nails at \$2.90 base per keg, Pittsburgh, and bright basic and Bessemer wire at \$2.60 base per 100 lb., Pittsburgh.

Structural Material.—Decline in both the inquiries for and the awards of structural projects is reflected in plain material, prices of which, in the absence of demands of any considerable size, are rather indefinite. One large independent is reported to have made a price of 1.50c. Pittsburgh for plates, shapes and bars over the remainder of the year. Fabricating interests here say no such price has been made them, but believe if they had a good-sized order to place they probably would be able to get that figure. Bars for structural work can be readily placed at 1.50c., but on plates and shapes 1.60c. is about as low as makers are disposed to go on the orders now coming out. The McClintic-Marshall Co. has taken 75 tons for a warehouse and nitric acid shed in Brooklyn for the Grasselli Chemical Co., Cleveland; 370 tons for the expansion bends, Jamaica Bay Boulevard, Rockaway, N. Y., and 230 tons for a deck plate girder bridge for the city of Holyoke, Mass. The American Bridge Co. has taken 1600 tons for the Hotel Bluefield, Bluefield, W. Va. Plain material prices are given on page 1246.

Plates.—A quotation of 1.50c., Pittsburgh, has be-

come rather more common in the past week and while the Steel Corporation subsidiary does not admit making this quotation, there is an impression in the trade that it would meet that price if refusal would mean the loss of a regular customer. We note one sale of 1000 tons to a Pittsburgh district railroad equipment company at 1.50c., Pittsburgh, and there is evidence to support the belief that individual orders of 1000 tons or more can be placed with more than one maker at that figure. We still quote the market from 1.50c. to 1.60c., but the higher figure refers only to small lots.

We quote sheared plates, ¼ in. and heavier, tank quality, at 1.50c. to 1.65c. f.o.b. Pittsburgh.

Steel Rails.—The fact that the Edgar Thomson Works of Carnegie Steel Co. is one of the active units of that company tells the story about the demand for standard rails in this district. Before the recent reduction of \$7 per ton, there were enough orders in sight to keep the Edgar Thomson rail mills running 50 per cent of capacity well up to Dec. 1, and recent releases mean the maintenance and possibly some gain on that rate for the remainder of the year. Interest in light rails is slack because the coal companies quite generally have covered against their winter requirements. Independents are quoting 1.65c. base for 25 to 45-lb. sections, while the Steel Corporation price is 1.75c.

We quote 25 to 45-lb. sections, rolled from new steel, 1.65c. to 1.75c. base; rolled from old rails, 1.60c. base; standard rails, \$40 per gross ton mill for Bessemer and open-hearth sections.

Iron and Steel Pipe.—Business relatively is good, though there is not so insistent a demand as there was just prior to the settlement of the railroad strike. The least active class of goods is oil country pipe, in which lately there has been much price cutting, as is evident from the fact that one of the distributors of the National Tube Co. has increased the resale discount on mill shipments from 5 to 10 per cent off list, and also has increased the discount on shipments out of stock. It is claimed this was made necessary by competition. There is not strict observance of the Sept. 16, steel pipe card on merchant pipe and on line pipe the advantage still is largely with buyers. Plant activities are fairly high with independent steel pipe makers averaging about 60 per cent and the National Tube Co. about 40 per cent. A. M. Byers Co. is running practically full at its Girard, Ohio, works. Discounts are given on page 1246.

Iron and Steel Bars.—Competition for business in soft bars is sharp, and while makers here are trying to get 1.60c. and 1.65c. they are not successful, save for small lots. A Buffalo maker has quoted 1.50c., Pittsburgh, in the Columbus, Ohio, district, and that was the bid of the Cambria Steel Co. on 525 tons recently inquired for by the Navy Department. Makers of cold finished screw stock and shafting claim to be unable to develop a price of less than 1.60c., Pittsburgh, on either Bessemer or open hearth bars, but admit they have only moderate tonnages to place on ordinary bars, and where a fair sized tonnage is wanted 1.50c. is the common base. There have been no developments in connection with the re-letting of the Baldwin Reservoir job in Cleveland, and inquiry has not yet gone out for the 1750 tons of reinforcing bars for this project. These bars rolled from new steel are fairly readily obtainable at 1.55c. Makers of iron bars still are holding to 2.15c. to 2.25c. for refined iron, but it is believed a firm offer of 2c. would be accepted, since orders are not heavy.

We quote steel bars rolled from billets at 1.50c. to 1.65c.; reinforcing bars, rolled from billets, 1.50c. to 1.65c. base; reinforcing bars, rolled from old rails, 1.50c.; refined iron bars, 2.15c. to 2.25c. in carloads, f.o.b. mill, Pittsburgh.

Sheets.—Demands still are on a tapering scale, and the efforts of some makers to get enough business to keep their plants going is causing irregularity in prices. A quotation of 3.75c. base has been made by more than one maker lately on galvanized sheets, or \$5 per ton below the regular price, and a concession, almost as much of a cut, has been made in black sheets. The American Sheet & Tin Plate Co. still is adhering to 3c. base for black and 4c. base for galvanized, but is letting it be known that it does not propose to let the price cost it the loss of customers. Demand for automobile sheets is small, and few expect real improvement in this di-

rection until next spring. One independent company in this district, running heavily to automobile and electrical sheets, shut down last week for an indefinite period. Valley mills have a good schedule this week, but less than 75 per cent of the mills of the leading interest are in operation, and the industry as a whole is averaging about 65 per cent against the recent peak of 75 per cent. Prices are given on page 1246.

Tin Plate.—Verifying the statement in these columns last week that the American Sheet & Tin Plate Co. would name a price of less than \$5 per base box for the first half of 1922, was its announcement of Nov. 3, of a base of \$4.75, effective that day, and applying against jobbers' orders for the first quarter and those from manufacturers for the first half of the next year. This price is a reduction of \$10 per ton from the former price of the company and is \$5 per ton below what most other makers were quoting, although a few were taking business at \$4.75. It was a surprise to many that the leading interest went below \$5, but it had encountered competition as low as \$4.75 on production plate and the naming of that figure undoubtedly was prompted by a desire to get away from the position of "holding the umbrella" for the other makers. All makers have fallen in line on price with the American Sheet & Tin Plate Co. Since the new price will not yield a profit except on a high rate of plant operations, it is expected to be more faithfully adhered to than would have been a higher price. Stocks of tin plate in consumers' hands are light and as this year's pack of canned goods was below normal and likely to be used up before a new crop is harvested and packed, container manufacturers are showing a disposition to put in their specifications and allow earlier shipments than has been the case before in several years. Indications point to unusually full employment of the mills during the winter months.

We quote standard production coke tin plate at \$4.75 per base box f.o.b. Pittsburgh, for carload lots.

Hot-Rolled and Cold-Rolled Strips.—There has been some increase in specifications against orders for hot-rolled strips. Some of the automobile makers, it seems, have decided to start producing against spring demands next month. Shipments on specifications, however, are priced at 2c., base, generally, and the current quotation of 2.25c., base, finds little basis in sales. Similarly in cold-rolled strips, consumers being covered against requirement over the remainder of the year at 3.75c., base, the current quotation of 4c. is merely a quotation.

Hoops and Bands.—New business is small and specifications against contracts placed prior to the recent advance in prices leave much to be desired. This is notably the case on hoops due to the fact that there are some makers in the Middle West who still are taking business below the regular base of 2.25c., Pittsburgh.

Steel Skelp.—Business still is exceedingly light and prices poorly defined. Makers are quoting 1.65c. or the same base as plates, but with both pipe and tube orders to be had only at highly competitive prices, difficulty is experienced in getting that price, and 1.60c. is the more common figure. A really desirable order probably would mean the shading of the latter price.

Coke and Coal.—The recent possibility of a strike by the union coal miners as a result of the injunction against the "check-off" by Federal Judge Anderson in Indianapolis brought a few inquiries for non-union coke and coal for forward delivery and also created some expectation of an active and strong market. Suspension of the injunction by the Federal Court of Appeals in Chicago, however, means that the operators will continue to check off and that the strike order will be rescinded. The result of these developments is that the recent softness in prices has become more pronounced. The larger producers of coke still are asking around \$3.40 per net ton, oven, for furnace grade, but the highest price at which any business recently has been done was \$3.35. Several of the smaller operators who put on ovens before they had orders now are trying to find an outlet for the production and have taken business anywhere from \$3.25 down to \$3. Demand for foundry coke is lighter than it has been and there also has been some cutting of specifications on contracts. Sales of surplus tonnages of this grade have been done as low as \$4, but the real market on standard grade

is from \$4.25 to \$4.50, and as high as \$4.75 still is being obtained for choice brands. The coal market is dull and weak. Representative of what now can be done we quote mine run steam coal at \$1.65 to \$1.75 per net ton at mines, by-product at \$1.75 to \$1.90, and gas coal at \$2.25 to \$2.50 for mine run and \$2.65 for $\frac{3}{4}$ -in. lump.

Boiler Tubes.—Makers of charcoal iron boiler tubes are holding rather firmly to the prices announced early in October, but the market on steel tubes is unsettled and weak with concessions noted of as much as \$14 to \$15 per ton from the quoted discounts. Business was fairly good in October, but has dwindled considerably this month. Evidently buyers covered their early winter needs last month. Discounts are given on page 1246.

Cold-Finished Steel Bars and Shafting.—Demand is slightly better than it has been, but it still falls far short of matching the supply and an order for 100 tons now gets as much notice as one ten times as large would have had a year ago. There is not enough business to go around among the makers and prices still are irregular and easy. The common range on cold-finished screw stock and shafting is 2.15c. to 2.25c. base, Pittsburgh, but as low as 2c. base has been done by some makers anxious to convert stock into cash. Ground shafting holds at 2.75c. base, mill for carloads.

Nuts, Bolts and Rivets.—A fair business was done by most makers last month, but purchases of that month evidently filled up buyers and demand this month so far has been light. Public quotations show no change, but it still happens that makers who insist upon them rigidly usually lose orders. Rivets are easy. Prices and discounts are given on page 1246.

Spikes.—The market on standard spikes is not over \$2.25 base per 100 lb. Pittsburgh on lots of a carload or more, and it is said that even that price is being shaded by Middle Western makers. The Illinois Central Railroad recently inquired for 2000 kegs and the Erie Railroad for 3000 kegs. Small spikes are only moderately active. Prices are given on page 1246.

Old Material.—Although prices are not quotably lower, there is a distinctly softer tone to the market and it is easier for steel makers to get supplies than recently was the case. The fact that the early fall demand for finished steel has not held up has made melters a little more conservative about scrap purchases and the prices they are willing to pay. Since this tendency also prevails in centers which compete with Pittsburgh for supplies, offerings in this district are heavier. The demand for turnings and heavy breakable cast here is curtailed by the fact that one important consumer of these grades recently shut down. The Cambria Steel Co. is reported to be in the market for heavy melting steel, for which it is offering \$15, Johnstown. A striking feature of the situation is that in the face of a slower consumptive demand and a drift toward lower prices, dealers still are paying high prices. Dealers paid \$13.50 a net ton or \$15.12 a gross ton for the steel recently offered by the Pennsylvania Railroad Central Region.

We quote for delivery to consumers' mills in the Pittsburgh and other districts taking the Pittsburgh freight rate, as follows:

Heavy melting steel, Steubenville, Follansbee, Brackenridge, Monessen, Midland and Pittsburgh.....	\$14.50 to \$15.00
No. 1 cast cupola size.....	17.50 to 18.00
Re-rolling rails, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	16.00 to 16.50
Compressed sheet steel.....	12.50 to 12.75
Bundled sheet sides and ends, f.o.b. consumers' mills, Pittsburgh dist.	11.00 to 11.50
Railroad knuckles and couplers.....	15.50 to 16.00
Railroad coil and leaf springs.....	15.50 to 16.00
Low phosphorus standard bloom and billet ends.....	20.00 to 21.00
Low phosphorus plates and other grades.....	17.50 to 18.50
Railroad malleable.....	13.50 to 14.00
Iron car axles.....	25.00 to 26.00
Locomotive axles, steel.....	23.00 to 24.00
Steel car axles.....	16.50 to 17.00
Cast iron wheels.....	16.50 to 17.00
Rolled steel wheels.....	18.50 to 19.00
Machine shop turnings.....	10.00 to 10.50
Sheet bar crop ends.....	14.50 to 15.00
Heavy steel axle turnings.....	12.50 to 13.00
Short shoveling turnings.....	11.50 to 12.00
Heavy breakable cast.....	15.50 to 16.00
Stove plate.....	13.00 to 13.50
Cast iron borings.....	10.50 to 11.00
No. 1 railroad wrought.....	12.00 to 12.50

New York

NEW YORK, Nov. 8.

Pig Iron.—The dullness reported last week continues and sales have been few and of small tonnages. One agency reports inquiries for first quarter of next year aggregating 1000 to 1200 tons, 300 tons being from a consumer at East Orange, N. J. Little, if any, eastern Pennsylvania iron is now obtainable for prompt delivery at less than \$21, furnace, for No. 2 plain, although \$20.50 is quoted for later delivery. Reports from New England indicate that many foundries are increasing their melt slightly, particularly those connected with the textile industry.

We quote delivered in the New York district as follows, having added to furnace prices \$2.52 freight from eastern Pennsylvania, \$5.46 from Buffalo and \$6.16 from Virginia:

East. Pa. No. 1 fdy., sil. 2.75 to 3.25.....	\$24.52
East. Pa. No. 2X fdy., sil. 2.25 to 2.75.....	23.52
East. Pa. No. 2 fdy., sil. 1.75 to 2.25.....	23.02
Buffalo, sil. 1.75 to 2.25.....	25.46
No. 2 Virginia, sil. 1.75 to 2.25.....	29.16

Ferroalloys.—Demand for ferromanganese is light, inquiries including three lots of 50 tons each. There is evidence that domestic producers are holding the full proportion of the market they have had. Recently the Steel Corporation is understood to have been a seller in the Central West. Prices are nominally unchanged. The spiegeleisen market is inactive with inquiries and sales confined to small lots at prevailing quotations. Demand for manganese ore continues negligible. Inquiries for 50 per cent ferrosilicon are fairly numerous, the total aggregating about 150 tons. A sale of 100 tons is reported to a large Michigan consumer. Quotations vary, depending on the seller, but while some quote \$60, delivered, as a minimum, it is admitted that business has been done as low as \$56 to \$58, delivered. Quotations are as follows:

Ferroalloys

Ferromanganese, domestic, delivered, per ton.	\$60.00 to \$61.00
Ferromanganese, British, seaboard, per ton.	\$58.35
Spiegeleisen, 20 per cent, furnace, per ton.	\$25.00 to \$26.00
Ferrosilicon, 50 per cent, delivered, per ton.	\$56.00 to \$60.00
Ferrotungsten, per lb. of contained metal..	.48c. to .58c.
Ferrochromium, 6 to 8 per cent carbon, 60 to 70 per cent Cr., per lb. Cr., delivered.	.10c. to .11c.
Ferrovandium, per lb. of contained vanadium	\$4.50

Ores

Manganese ore, foreign, per unit, seaboard..	20c.
Tungsten ore, per unit, in 60 per cent concentrates.....	\$2.50 up
Chrome ore, 40 to 45 per cent Cr ₂ O ₃ , crude, per net ton, Atlantic seaboard.....	\$20.00 to \$25.00
Chrome ore, 45 to 50 per cent Cr ₂ O ₃ , crude, per net ton, Atlantic seaboard.....	\$30.00
Molybdenum ore, 85 per cent concentrates, per lb. of MoS ₃ , New York.....	.55c. to .60c.

Cast-Iron Pipe.—Bids were opened Monday of this week for 100 tons of 12-in. pipe for Washington. Though immediate business is falling off, due to the approach of winter months, prospects for a healthy business in the spring are very evident. We quote per net ton, f.o.b. New York, carload lots, as follows: 6-in. and larger, \$47.30 4-in. and 5-in., \$52.30 3-in., \$62.30, with \$4 additional for Class A and gas pipe.

Warehouse Business.—The present situation in transactions compares rather unfavorably with the improvement in business that was noted in September by most warehouses. Prices remain unchanged in all materials, but they are undeniably weak in many lines. Warehouses dealing in wrought iron and steel pipe report extreme dullness, but an average number of small orders. The brass and copper market shows fair activity and prices are stiff. We quote prices on page 1258.

High Speed Steel.—Quotations on 18 per cent tungsten high speed steel continue at about 90c. per lb. Orders are confined to a few bars. Consumers in numerous instances, when in need of certain sizes not in their stock, are asking the manufacturer to exchange sizes which they are not using.

Finished Iron and Steel.—The New York Central is inquiring for 100,000 to 200,000 tons of rails of 120-lb. sections and lighter. No fresh railroad car business has been offered, but the Baltimore & Ohio has decided to ask for 1000 more hopper car bodies in place of the larger total number of coke cars and gondolas earlier under consideration. Railroad bridge work promises to

expand. The Boston & Maine has invited bids for the strengthening of the Newburyport bridge taking probably 2200 tons, and the Philadelphia & Reading has placed a 600-ton bridge at Atlantic City with the American Bridge Co. General indications are that the November rate of buying is keeping up to the October level. It now develops that the concrete reinforcing bars for the Jamaica Boulevard will be supplied by the Jones & Laughlin Steel Co. at 1.50c. Pittsburgh, and that the total may mount to 7500 tons. Activity in pipe has been particularly noteworthy. One mill, for example, had been lately operating 80 per cent of its pipe furnaces, and its new orders and specifications for October were practically 50 per cent larger than its shipments. New fabricated steel work includes 2100 tons for the National Biscuit Co. at Buffalo, 1300 tons for a high school at Greenville, N. J., 350 tons for a viaduct for New York at 134th Street (this a revival of the proposal), 360 tons for a public school in New York and 600 tons for an electric station at Fort Worth, Tex. Among the contract awards, besides the Reading bridge already mentioned, are 600 tons for the Atlas Powder Co., Marshall, Tex., 1000 tons for a high school at Springfield, Mass., and 3600 tons for some 20 tanks for the Sinclair Crude Oil Purchasing Co. in Oklahoma, 15 of them being placed with the Phoenix Iron Works Co.

We quote for mill shipments, New York, as follows: Soft steel bars, 1.80c. to 1.88c.; plates, 1.88c. to 2.03c.; structural shapes, 1.88c. to 2.03c.; bar iron, 1.98c. to 2.03c. On export shipments the freight rate is now 28.5c. per 100 lb., instead of 38c., the domestic rate.

Old Material.—Though there is reported an increase of buying of steel by mills in the Pittsburgh district, the high freight rate from this district prevents brokers and dealers here from taking advantage of it. Business was very quiet last week and is expected to be even more so this week because of the two holidays. Cast scrap is a trifle softer, but machine-shop turnings have advanced 50 cents.

Buying prices per gross ton, New York, follow:

Heavy melting steel, yard.....	\$8.00 to \$8.50
Steel rails, short lengths, or equivalent.....	9.50 to 10.00
Rerolling rails.....	12.00 to 12.50
Relaying rails, nominal.....	30.00 to 35.00
Steel car axles.....	12.00 to 12.50
Iron car axles.....	21.00 to 21.50
No. 1 railroad wrought.....	12.00 to 12.50
Wrought iron track.....	9.50 to 10.00
Forge fire.....	6.00 to 6.50
No. 1 yard wrought, long.....	10.50 to 11.00
Light iron.....	4.50 to 5.00
Cast borings (clean).....	5.50 to 6.00
Machine-shop turnings.....	4.50 to 5.00
Mixed borings and turnings.....	4.50 to 5.00
Iron and steel pipe (1 in. diam. not under 2 ft. long).....	8.75 to 9.25
Stove plate.....	11.00 to 11.50
Locomotive grate bars.....	10.50 to 11.00
Malleable cast (railroad).....	9.00 to 9.50
Car wheels.....	12.50 to 13.00

Prices which dealers in New York and Brooklyn are quoting to local foundries, per gross ton, follow:

No. 1 machinery cast.....	\$17.00 to \$18.00
No. 1 heavy cast (columns, building materials, etc.), cupola size.....	16.00 to 17.00
No. 1 heavy cast, not cupola size.....	15.50 to 16.00
No. 2 cast (radiators, cast boilers, etc.).....	10.00 to 10.50

Cleveland

CLEVELAND, Nov. 7.

Iron Ore.—Ore shipments during October were 3,233,081 gross tons and the lake movement until Nov. 1 was 21,894,275 tons, as compared with 53,122,342 tons during the same period last year, or a decrease of 31,228,067 tons. As the November movement is estimated at about 200,000 tons, lake shipments for the season will be approximately 22,100,000 tons, or slightly greater than recent estimates. Only a few cargoes remain to be shipped and all shippers expect to be through by Nov. 15.

We quote delivered lower lake ports: Old range Bessemer, 55 per cent iron, \$6.45; Old range non-Bessemer, 51½ per cent iron, \$5.70; Mesabi Bessemer, 55 per cent iron, \$6.20; Mesabi non-Bessemer, 51½ per cent iron, \$5.55.

Pig Iron.—Weakness has developed in the foundry pig iron market and a local interest is now quoting this grade on the basis of \$20, Valley furnace, for shipment from Cleveland. This price means less than \$20 at furnace in case the freight rate to consuming point is lower from the Valley than from Cleveland. Valley

producers continue to quote foundry iron at \$21, and Lake furnaces, with one exception, are holding to a minimum price of \$20 at furnace. Locally foundry iron is quoted at \$20.50 to \$21 at furnace, although a few sales are reported at \$20, Valley, or \$21.96 delivered. Sales during the week were exceedingly light. One producer sold 900 tons in small lots and some others smaller amounts. Inquiries are still light, although some inquiries have come from central Ohio for foundry iron in lots up to 300 tons. Two inquiries are pending from the Pittsburgh district, one for 800 tons of foundry and the other for 300 tons of malleable iron. The General Electric Co. is inquiring for 3000 tons of basic iron for delivery to a Brackenridge steel plant. Southern resale iron is still offered at \$18.50. Shipments are lighter than last month. The McKinney Steel Co. blew in a second Cleveland furnace, No. 5, having just completed relining this furnace.

Quotations below are f.o.b. local furnace for northern foundry iron, not including a 56c. switching charge. Other quotations are delivered Cleveland, being based on a \$1.96 freight rate from Valley points, a \$3.36 rate from Jackson and a \$6.67 rate from Birmingham:

Basic	\$20.96
Northern No. 2 fdy., sil. 1.75 to 2.25..	20.00 to 21.00
Southern fdy., sil. 2.25 to 2.75.....	26.17
Ohio silvery, sil. 3 per cent.....	32.86
Standard low phos., Valley furnace..	35.00

Coke.—Softness has developed in the foundry coke market and some makes are 25c. to 50c. a ton lower. Quotations on standard Connellsville foundry coke range from \$4.25 to \$4.75.

Semi-Finished Steel.—The market is inactive with \$30 regarded as the price on sheet bars, although some mills are asking \$32. On slabs a quotation of \$29, Youngstown, has appeared.

Finished Iron and Steel.—The demand is light and prices are weak. There is more activity in plates than in other lines. Structural material is particularly quiet. On steel bars 1.50c., Pittsburgh, seems to have become a more common quotation, and in the case of one small lot of reinforcing bars sold at that price the seller agreed to truck the steel from the cars to the work without charge. The plate market is irregular. A western Pennsylvania tank shop is reported to have placed 3,000 tons of plates at about 1.50c. Other quotations range from 1.55c. to 1.75c. Quotations on structural material appear to range from 1.55c. to 1.65c. Hard steel bars are unchanged at from 1.50c. to 1.60c. The seasonable slowing down of the automotive industry has resulted in a falling off in the demand for steel from that source. However, the plans of the Durant Motors, Inc., for getting under production resulted in the placing during the week of small orders including one for 104 tons of chrome nickel steel. There is little activity in the building field. Two new inquiries, one for a branch for the Union Trust Co. and the other for an addition to the plant of the Lamson & Sessions Co., Cleveland, each requiring 200 tons, have come out. The Stange-Walsh Construction Co., Washington, was low bidder for the Baldwin Reservoir, Cleveland, requiring 1700 tons of reinforcing bars.

Jobbers quote steel bars, 2.64c.; plates and structural shapes, 2.74c.; No. 9 galvanized wire, 3.50c.; No. 9 annealed wire, 3.25c.; No. 28 black sheets, 3.75c.; No. 28 galvanized sheets, 4.75c.; No. 10 blue annealed sheets, 3.10c.; hoops and bands, 3.29c.; cold-rolled rounds, 3.85c.; flats, squares and hexagons, 4.35c.

Sheets.—New demand is very light, but mills are getting good specifications on contract. The market is not firm and there are reports of concessions to 2.75c. on black sheets and to 3.50c. on galvanized sheets. Some mills are still quoting blue annealed sheets in all gages at 2.25c. Sales of light plates in blue annealed gages are being made at 2.10c.

Warehouse Business.—Warehouse prices on steel bars are weak, and although regular quotations have not been changed, leading jobbers are naming a 2.54c. price, or a concession of \$2 a ton. Some jobbers are selling odd lots as low as 2c. Regular warehouse prices on other material are being well maintained.

Bolts, Nuts and Rivets.—There is a lull in the bolt and nut market and in view of the fact that inventory times are approaching, makers look for a quiet month. Price irregularities are still appearing. Two new in-

quiries, each for 1000 tons of structural rivets, have appeared from the East, one from a shipyard and the other from a boiler shop. In both cases, deliveries are wanted over a four month period. Local makers are taking small lot orders at 2.40c. for structural rivets and 2.50c. for boiler rivets, but these prices are being shaded \$1 to \$2 a ton.

Old Material.—The market continues dull, but prices are firm. A limited demand developed during the week from a local blast furnace for mixed borings and short turnings. One sale of a small lot to this consumer is reported at \$8.75, which appears to be somewhat above the going market. Mills in the Youngstown district are still out of the market, but there is some activity on the part of dealers in that district who have unfilled orders. Sales are reported to dealers for delivery to Youngstown mills at \$14 to \$14.50 for heavy melting steel and \$12.25 to \$12.50 for compressed steel. Dealers say that the amount of scrap available at prices they are able to pay is quite limited.

We quote per gross ton, f.o.b. Cleveland, as follows:

Heavy melting steel.....	\$12.00 to \$12.50
Steel rails, under 3 ft.....	12.75 to 13.25
Steel rails, rerolling.....	13.50 to 14.00
Iron rails	11.00 to 12.00
Iron car axles.....	18.00 to 19.00
Low phosphorus melting scrap.....	12.50 to 13.00
Cast borings	8.65 to 8.85
Machine shop turnings.....	6.60 to 7.00
Mixed borings and short turnings....	7.50 to 8.00
Compressed steel	9.50 to 9.75
Railroad wrought	12.00 to 12.50
Railroad malleable	12.00 to 12.75
Light bundled sheet stampings.....	6.25 to 6.60
Steel axle turnings.....	9.25 to 9.75
No. 1 cast.....	16.00 to 16.50
No. 1 busheling.....	8.25 to 8.75
Drop forge flashings, over 10 in....	8.00 to 8.50
Drop forge flashings, under 10 in....	8.00 to 8.50
Railroad grate bars.....	12.75 to 13.00
Stove plate	13.00 to 13.25
Pipes and flues.....	8.50 to 9.00

Boston

BOSTON, Nov. 8.

Pig Iron.—Sales this week were confined to a few car lots, mostly Buffalo and eastern Pennsylvania iron. In the absence of business, prices are largely nominal. Sellers of Buffalo, in some cases, ignore silicon price differentials, and the impression among buyers is that round tonnages can be purchased for less than \$20 base. A car of special analysis Buffalo sold this week at \$19.50. On the other hand, iron of silicon 3.00 to 3.25 generally has sold at \$21 furnace. Two cars of eastern Pennsylvania No. 1X iron sold at \$24.75 furnace, but other brands are available at least \$2 a ton less. No. 2X central Pennsylvania iron has sold at \$20.75 furnace or \$26.51 delivered. No Virginia sales are reported, and, as all furnaces are down, the market is firm at \$24 to \$24.50 base. Freights continue against sales of Alabama in this territory. A western Massachusetts melter asking tentative bids on 6000 tons and eastern Massachusetts foundry on an unstated tonnage, generally understood to be 5000 tons, first quarter delivery, have been unable to cover at prices wanted. Little 1922 iron has sold in this district. A Cape foundry recently purchased 500 tons of northern, silicon 2.75 to 3.25, mostly first quarter delivery, at \$21 furnace. The average New England melter has enough iron on hand or on order to carry him well into the first quarter on the present basis of operations. Delivered prices follow:

East. Penn., silicon 2.25 to 2.75.....	\$24.56 to \$27.56
East. Penn., silicon 1.75 to 2.25.....	24.06 to 27.06
Buffalo, silicon 2.25 to 2.75.....	25.46 to 26.46
Buffalo, silicon 1.75 to 2.25.....	24.96 to 25.96
Virginia, silicon 2.25 to 2.75.....	31.06 to 31.56
Virginia, silicon 1.75 to 2.25.....	30.56 to 31.06
Alabama, silicon 2.25 to 2.75.....	30.16
Alabama, silicon 1.75 to 2.25.....	29.66

Warehouse Business.—Movement of iron and steel out of stock is not as good as reported the previous fortnight. The demand for bolts and nuts is better, but competition for business is keener and prices are no more than steady. In fact, some jobbers offer an extra 10 per cent on semi-finished hexagon nuts. Mill indications of an impending advance in wire nails have not influenced the local market, which is \$4 to \$4.50 base. Sheet zinc is 1c. per lb. lower at 11c. base.

Finished Material.—The Providence Iron & Steel Co., Providence, R. I., is awarded 300 tons structural for a Masonic temple, Fall River, Mass., and McClintic-Marshall Co. 225 tons for the Valley bridge, Holyoke, Mass., and the New England Structural Co., Boston, 200 tons for the Bradley building, Boston, while the Boston & Maine Railroad Co. is asking bids on strengthening bridge No. 50, Newburyport, involving approximately 2300 tons. Revised bids are asked on the 600-ton Providence, R. I., high school job. No award on the Neponsit River bridge has been made. Otherwise the structural market is quiet and steady at 1.60c. Pittsburgh on shapes. Buying of other steel mill products has dropped to small proportions, an inquiry by the New York, New Haven & Hartford Railroad Co. for 200 tons plates, shapes and bars, delivery Sagamore, Mass., car repair shops, being among the largest prospective orders. The dullness is attributed to anticipated lower freight rates and to the drawing nearer of the stock taking period. On the other hand, warehouses and manufacturers who bought stock last month want mill deliveries. The bar market is unsettled; 1.50c. Pittsburgh can be done.

Jobbers now quote: Soft steel bars, \$2.81½ per 100 lb. base; flats, \$3.31½; concrete bars, \$2.15 to \$2.81½; tire steel, \$4 to \$4.40; spring steel, open hearth, \$4.50; crucible, \$11.50; steel bands, \$3.73 to \$3.78; steel hoops, \$3.46½; toe calk steel, \$5; cold rolled steel, \$3.75 to \$4.25; structural steel, \$2.91½; plates, \$2.91½ to \$3.10; No. 10 blue annealed sheets, \$3.73; No. 28 black sheets, \$4.50; No. 28 galvanized sheets, \$5.50; refined iron, \$2.81½; best refined, \$4.25; Wayne iron, \$5.50; Norway iron, \$5.50 base.

Old Material.—Dealers report no improvement in the foundry demand for No. 1 machinery cast. A sale of No. 2 cast is reported this week at \$13 delivered, but this price is out of proportion with those generally asked. A Norwood, Mass., consumer is still inquiring on stove plate, but getting little in this market. It is, however, securing New York material. There is a good demand for machine shop turnings and the market is about 50c. higher, while the call for rolling mill and chemical borings, especially the latter, exceeds the supply and prices are strong. One chemical company is inquiring on 500 tons of borings. Local buying of railroad wrought scrap also has improved at \$15 to \$16 delivered, an advance of about 50c. Almost no business is reported in heavy melting steel, there apparently being a deadlock between steel mills and dealers. Bundled skeleton and forged scrap inquiries are increasing and prices for same have stiffened on the inside.

The following prices are for gross ton lots delivered consuming points:

No. 1 machinery cast.....	\$19.00 to \$20.00
No. 2 machinery cast.....	17.00 to 18.00
Stove plate	15.50 to 16.50
Railroad malleable	13.50 to 14.50

The following prices are offered per gross ton lots f.o.b. Boston rate shipping points:

No. 1 heavy melting steel.....	\$7.50 to \$8.00
No. 1 railroad wrought.....	11.50 to 12.50
No. 1 yard wrought.....	9.50 to 10.50
Wrought pipe (1-in. in diameter, over 2 ft. long).....	8.00 to 8.25
Machine shop turnings.....	4.00 to 4.50
Cast iron borings, rolling mill.....	5.00 to 5.50
Cast iron borings, chemical.....	5.50 to 6.00
Blast furnace borings and turnings..	3.50 to 4.00
Forged scrap and bundled skeleton..	5.00 to 5.50
Street car axles and shafting.....	12.00 to 12.50
Car wheels	11.00 to 12.00
Rerolling rails	11.50 to 12.00

Birmingham

BIRMINGHAM, ALA., Nov. 8.

Pig Iron.—Sales of pig iron, while in small lots, aggregated a tonnage for the week that is regarded as satisfactory considering the general waiting mood based on expectancy of lower freight rates. The buying was for November delivery almost entirely, interest in the future appearing to have collapsed for the time being. Southern consumers seem to feel that the market will neither rise nor fall and are not concerned over forward delivery, while the furnaces that are active are well booked for the remainder of the year and the make is moving out rapidly. Indications point to further diminution of stocks. The largest yard holdings will be about 30,000 tons and none others will amount to much in the merchant iron market. Inquiry was rather brisk with one maker, who received one for 5000 tons from a pipe maker outside the district. A few lots were sold immediately north of the

Ohio River, but, as a rule, nothing is being done in that direction. The six merchant stacks on the active list seem just about the right number to care for the going business and blowing in of additional ones is not mentioned as of the near future. The pipe melt continues large and there is a steady movement of iron to pipe shop yards. All business is done on the \$19 base. The resuming charcoal furnaces are delivering largely on past due contracts and new business is not of noticeable tonnage.

We quote per gross ton f.o.b. Birmingham district furnaces, as follows:

Foundry, silicon 1.75 to 2.25.....	\$19.00
Basic	18.00
Charcoal, warm blast.....	35.00

Finishing Mills.—Tennessee company's and Gulf States Steel Co.'s finishing mills continue on same satisfactory scale as for several weeks. Hoop and band mills, which were down a while, resumed Monday. There have been some small exports to South America and Asia. One structural steel mill is practically at 100 per cent on steel for buildings in the Southern States.

Cast Iron Pipe.—Both high pressure and sanitary pipe makers report much better business than usual for this time of the year, due to pressure to advance construction before winter sets in. October business in sanitary pipe was good, especially to Pacific coast and the East, but it was well scattered. Some shops are at 100 per cent capacity. Jobbers are protecting themselves for the remainder of the year at present prices, which remain for the most part at \$40 base. All high pressure pipe shops are operating, although one is on fittings only. High pressure base is \$33 to \$65.

Coal and Coke.—Coal production has made another high mark for the year, a total of 280,000 tons per week being recorded, compared with normal of 300,000. South America has taken several consignments of Alabama coal out of Mobile. The Barrett company's pitch coke is pronounced a success, but sells at \$7, compared with \$6 for beehive and by-products. Coke is active and demand is widely scattered.

Old Material.—Scrap dealers hold to No. 1 steel hoping for higher prices. It is difficult to get in country scrap on account of freight rates. Expected strength in the old material market has not materialized.

We quote per gross ton f.o.b. Birmingham district yards as follows:

Steel rails	\$11.00 to \$12.00
No. 1 steel.....	10.00 to 11.00
No. 1 cast.....	15.00 to 16.00
Car wheels	15.00 to 16.00
Tramcar wheels	12.00 to 13.00
No. 1 wrought	13.00 to 14.00
Stove plate	11.00 to 12.00
Cast iron borings.....	6.00 to 7.00
Machine shop turnings.....	6.00 to 7.00

Buffalo

BUFFALO, Nov. 5.

Pig Iron.—Falling off in demand is noticed by all the producers in the district and notwithstanding that \$19 base price is the rule on large tonnages rather than the exception, sales have been light since the several purchases by radiator interests. Some evidence of the bargain nature at which this business moved is indicated by the fact that a furnace which quoted \$19.50 for this business did not get any portion of the orders. Ore shipments have practically ceased for the year and the present blast furnace operation with seven stacks in blast will likely represent the apex of blast this year. One furnace has less than 1000 tons inquired for in a week and about 15 requests for prices made up this total. A sale of 400 tons at \$20.50 was made by a furnace. A producer with two furnaces in blast will change one stack to run on malleable for a few weeks. There is no disposition by any furnaces to blow in additional stacks at present prices.

We quote f.o.b. dealers' asking prices per gross ton Buffalo as follows:

No. 1 foundry, 2.75 to 3.25 sil.....	\$19.50 to \$20.00
No. 2X foundry, 2.25 to 2.75 sil.....	19.00 to 19.50
No. 2 plain, 1.75 to 2.25 sil.....	18.50 to 19.00
Basic	20.00 to 21.00
Malleable	20.00 to 21.00
Lake Superior charcoal.....	31.75

Finished Iron and Steel.—Some improvement in the demand for wire products and continued good business

in pipe summarize the only activity in the market. The wire improvement is based on the advance in the price situation, but generally the demand for plates and sheets is small. Some structural business has come out and several fabricators have found a trifling improvement in the demand for small sizes. Some of this inquiry concerns 1922 business. The Kellogg Structural Steel Co. will fabricate 100 tons for the Cox building, Utica, N. Y. The three open hearth furnaces in operation by a bar interest are producing in excess of demand and operation of a fourth mill is intermittent. No bar inquiry of consequence is on the market and business taken is for exceedingly small tonnages. Tin plate business is dull due to the close of the seasonal demand. In some quarters, the falling off in inquiry is not charged to the railroad strike alarm as much as it is to the belief that freight rate reductions may effect economies in buying and that wisdom is shown in waiting for new rates.

Warehouse Business.—Dullness has been evident since the crisis in the railroad situation was passed and the effect is apparent in sales as well as interest in prices. In some branches of the business the marked quiet is attributed to the fact that a number of buyers anticipated needs in advance of the strike date and this material is sufficient to carry them over for some time.

We quote warehouse prices f.o.b. Buffalo as follows: Structural shapes, 2.90c.; plates, 2.90c.; plates, No. 8 gage, 3.25c.; soft steel bars and shapes, 2.80c.; hoops, 3.50c.; blue annealed sheets, No. 10, 3.55c.; galvanized steel sheets, No. 28, 5.25c.; black sheets, No. 28, 4.25c.; cold-rolled strip steel, 6.40c.; cold-rolled round shafting, 5.90c.

Old Material.—Inquiry and sales has fallen off to a marked degree. One dealer is making no effort to sell at present prices and the mills that were buying in small lots in October appear to have filled their needs. In filling an order for heavy melting steel, a dealer paid \$12.50. No other materials have moved in any large tonnages.

We quote dealers' asking prices per gross ton f.o.b. Buffalo as follows:

Heavy melting steel.....	\$13.00 to \$14.00
Low phosph., 0.004 and under.....	16.50 to 17.50
No. 1 railroad wrought.....	13.00 to 14.00
Car wheels.....	16.00 to 17.00
Machine shop turnings.....	7.00 to 8.00
Cast iron borings.....	7.00 to 8.00
Heavy axle turnings.....	10.00 to 11.00
Grate bars.....	11.00 to 12.00
No. 1 busheling.....	10.00 to 11.00
Stove plate.....	14.50 to 15.00
Bundled sheet stampings.....	8.00 to 9.00
No. 1 machinery cast.....	17.00 to 17.50
Hydraulic compressed.....	10.50 to 11.50
Railroad malleable.....	13.00 to 14.00

St. Louis

ST. LOUIS, Nov. 8.

Pig Iron.—The market for pig iron is still rather inactive. Consumers in this district are buying very little, and the limited demand has come from other sources. For instance, a California melter bought 650 tons of Southern foundry iron from a broker here, a car wheel manufacturer in the Southwest bought 300 tons, and there were several 100-ton orders, while the Missouri, Kansas & Texas Railroad bought a carload of foundry iron for its foundry in Parsons, Kan. An Indiana melter has an inquiry out for 500 tons of malleable, and there are other scattering inquiries out for 1,000 tons. The market is firm at \$21 Chicago, although in rare instances some producers are getting \$22 Chicago.

We quote delivered consumers' yards St. Louis as follows, having added to furnace prices \$2.88 freight and war tax from Chicago and \$5.91 from Birmingham:

Northern Foundry, sil. 1.75 to 2.25..	\$23.88
Northern malleable, sil. 1.75 to 2.25..	23.88
Basic.....	23.88
Southern foundry, sil. 1.75 to 2.25..	24.91

Finished Iron and Steel.—The Missouri, Kansas & Texas Railroad expects to place orders some time this week for the machine tool list issued several weeks ago embracing 86 items. This road also has an inquiry out for 20 steel passenger cars and 10 steel baggage cars. The Missouri Pacific Railroad placed an order with the Sheffield Car & Equipment Co., Kansas City, Mo., for the repair of 530 box cars, involving considerable steel tonnage, and this road also purchased 2,000 tons of standard track spikes, for which an inquiry was reported several weeks ago. Cosden & Co., Tulsa, Okla.,

have bought 1,000 tons of plates required for tanks, which are being built by a Kansas City fabricator. The City of St. Louis will build a 3-story addition to Koch Hospital, involving 50 tons of reinforcing bars and 20 tons of structural steel. Bids will be opened on Nov. 22 for a high school at Lawrence, Kan., involving 230 tons of bars. It was learned here that the Concrete Engineering Co., Omaha, got the contract for the 1,000 tons of bars to be used in the Omaha Commercial and Technical High School. The demand for sheets seems to have fallen off.

For stock out of warehouse we quote: Soft steel bars, 2.87½c. per lb.; iron bars, 2.87½c.; structural shapes, 2.97½c.; tank plates, 2.97½c.; No. 10 blue annealed sheets, 3.47½c.; No. 28 black sheets, cold rolled, one pass, 4.10c.; cold drawn rounds, shafting and screw stock, 4.20c.; structural rivets, \$3.77½ per 100 lb.; boiler rivets, \$3.87½; tank rivets, 7/16 in. and smaller, 60-10 per cent off list; machine bolts, large, 55 per cent; small, 60 per cent; carriage bolts large, 50-5 per cent; small, 55 per cent; lag screws, 60 per cent; hot pressed nuts, square or hexagon blank, \$3.25; and tapped, \$3.00 off list.

Coke.—The demand for coke is only fair. So far the troubles among the coal miners have not stimulated any demand for coke. Foundry coke is moving more freely. With colder weather, the sale of domestic coke is improving.

Old Material.—The market for old material does not show the strength recently displayed. There is an apparent softening all down the line and prices have receded from 50c. to \$2 a ton from recent high levels. This weakness is attributed primarily to a slackening of demand. Consumers appear to have deserted the market entirely, and brokers are experiencing some difficulty in disposing of material now coming in, being compelled in many instances to sell at a loss. The recent cut of \$7 per ton in new rails has not affected the relaying rails market to any extent, as relaying rails still are scarce and are quoted at from \$30 to \$35 per gross ton, according to section. Current railroad offerings include: Baltimore & Ohio, 10,800 tons; Missouri, Kansas & Texas, 1,800 tons, and Mobile & Ohio, 550 tons.

We quote dealers' prices, f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Old iron rails.....	\$16.00 to \$16.50
Steel rails, rerolling.....	13.00 to 13.50
Steel rails, less than 3 ft.....	13.00 to 13.50
Relaying rails, standard section.....	30.00 to 35.00
Cast iron car wheels.....	15.00 to 15.50
No. 1 heavy railroad melting steel.....	11.50 to 12.00
No. 1 heavy shoveling steel.....	11.00 to 11.50
Ordinary shoveling steel.....	10.50 to 11.00
Frogs, switches and guards, cut apart.....	11.50 to 12.00
Ordinary bundle sheet.....	5.00 to 5.50

Per Net Ton	
Heavy axles and tire turnings.....	\$7.00 to \$7.50
Iron angle bars.....	13.00 to 13.50
Steel angle bars.....	10.50 to 11.00
Iron car wheels.....	21.00 to 21.50
Steel car wheels.....	14.50 to 15.00
Wrought iron arch bars and transoms.....	15.00 to 15.50
No. 1 railroad wrought.....	11.00 to 11.50
No. 2 railroad wrought.....	10.00 to 10.50
Steel couplers and knuckles.....	12.00 to 12.50
Locomotive tire, 42-in. and over, smooth inside.....	10.00 to 10.50
No. 1 dealer's forge.....	9.50 to 10.00
Cast iron borings.....	7.00 to 7.50
No. 1 busheling.....	10.50 to 11.00
No. 1 railroad cast.....	14.50 to 15.00
Stove plate and light cast.....	12.50 to 13.00
Railroad malleable.....	10.00 to 10.50
Agricultural malleable.....	9.50 to 10.00
Pipes and flues.....	8.00 to 8.50
Heavy railroad sheet and tank.....	7.00 to 7.50
Light railroad sheet.....	5.00 to 5.50
Railroad grate bars.....	10.00 to 10.50
Machine shop turnings.....	6.00 to 6.50
Country mixed iron.....	7.50 to 8.00
Uncut railroad mixed.....	8.50 to 9.00
Horseshoes.....	11.00 to 11.50
Railroad brake shoes.....	9.50 to 10.00
Railroad springs.....	12.00 to 12.50

Carnegie Steel Co. Will Dismantle Parts of Sharon Plant

YOUNGSTOWN, OHIO, Nov. 7.—The Carnegie Steel Co. announces it will dismantle steel making and rolling mill units at the Sharon, Pa., plant, leaving only a blast furnace. The plant was built in 1896 and consists of six open-hearth furnaces of 40 tons capacity each, four soaking pits, two continuous heating furnaces, one 35-in. blooming mill and one 27-in. three-high finishing mill. It has an annual capacity of 150,000 tons of ingots and had been running on sheet bars and skelp prior to its suspension about a year and a half ago.

Cincinnati

CINCINNATI, Nov. 7.

Pig Iron.—The market continues dull, though there are a few small-sized inquiries being figured on. The National Cash Register Co. is inquiring on 300 tons, half Northern and half Southern, for January shipment, and another Dayton manufacturer is in the market for 250 tons. With these exceptions, the inquiries are confined to carload lots. Several sales of 100 tons each are reported, a central Ohio stove maker taking 150 tons of iron from a Cleveland district furnace on the basis of \$20. A southern Ohio melter is reported to have bought 100 tons from a southern Ohio furnace at \$20, Ironton, and a sale of 100 tons of high silicon iron to a central Ohio melter is reported at the same figure. Some resale material is still available in the South at \$18.50, but the usual quotation is \$19, as most furnaces are quoting this figure on the base grade. An interesting feature of the market was a quotation of Buffalo iron into Columbus, Ohio, on an equal delivered basis with lake and southern Ohio furnaces. It is reported that two steel works furnaces in this district will be lighted shortly to supply the plants with iron to run open-hearth furnaces. No confirmation of the reports, however, is available.

Based on freight rates of \$4.50 from Birmingham and \$2.52 from Ironton, we quote f.o.b. Cincinnati:

Southern coke, sil. 1.75 to 2.25 (base)	\$23.50
Southern coke, sil. 2.25 to 2.75 (No. 2 soft)	24.00
Ohio silvery, 8 per cent sil.	32.86
Southern Ohio coke, sil. 1.75 to 2.25 (No. 2)	\$22.52 to 23.52
Basic, Northern	22.52
Malleable	24.02

Finished Material.—With the exception of wire and wire products, the market on finished materials was quiet during the week. The prospect of an advance in wire and wire nails brought out a little business, on the basis of 2.60c. on plain wire, and 2.90c. per keg for wire nails. The advance on these products has not been announced, but the indications are that it will be some time this week. It is currently reported that several independent nail mills have recently quoted \$2.75 per keg on wire nails. The American Sheet & Tin Plate Co. has reduced its price on production tin plate from \$5.25 per base box to \$4.75. This latter price has been made for some time by independent producers, and the action of the Steel Corporation's subsidiary now makes it the general market quotation. Tin plate business has fallen off to some extent recently, and it is yet too early to forecast what the result of the price reduction will be. Sheet business is confined almost entirely to carload orders for fill-in purposes, and the prices of 3c. and 4c. for black and galvanized sheets, made by some independent mills, is not being generally adhered to. On bars, shapes and plates, 1.60c. is the ruling quotation, with business slow. In the structural field, the Big Four closed bids Friday on several plate girder spans, aggregating 400 tons, though an award has not yet been made. Two turntables which this road recently inquired for have been awarded to the King Bridge Co. A five-story hotel at Middletown, Ohio, to be built of reinforced concrete, has been awarded to Dwight P. Robinson Co., New York. An interesting feature in the steel market during the week was a river shipment of approximately 5000 tons of steel destined for points along the Ohio and Mississippi rivers. The steel was shipped by the Jones & Laughlin Steel Co. from Pittsburgh, and included bars, shapes, plates, pipe and wire products.

Coke.—The coke market is exceptionally dull, and from 25 to 50c. weaker. Connellsville foundry coke is now quoted at \$4.50; Wise County, \$5.75 to \$6, and New River, \$7.50.

Warehouse Business.—Local warehouses report business as fair. During the latter part of the week some nice orders were booked, some of the business coming from the railroads operating in this district. Bolts and nuts are fairly active, one jobber reporting receipt of an order for 25 tons. Wire nails are also moving fairly well, and there has been a limited de-

mand for cold-rolled steel. Prices are unchanged, and, if anything, firmer.

Iron and steel bars, 3c. base; hoops and bands, 3.75c. base; shapes, 2.85c. base; plates, 2.85c. base; reinforcing bars, 3.07½c. base; cold rolled rounds, 1½ in. and larger, 4.10c.; under 1½ in. and flats, squares and hexagons, 4.75c.; No. 10 blue annealed sheets, 3.50c.; No. 28 black sheets, 4.25c.; No. 28 galvanized sheets, 5c.; wire nails, \$3.25 per keg base; No. 9 annealed wire, \$3.00 per 100 lb.

Old Material.—A small flurry developed in the scrap market during the early part of the week, but soon petered out, and sales are practically non-existent. Prices are quotably unchanged.

We quote dealers' buying prices, f.o.b. cars:

	Per Gross Ton	
Bundled sheets	\$4.50 to \$5.50	
Iron rails	12.50 to 13.00	
Relaying rails, 50 lb. and up	25.50 to 26.50	
Rerolling steel rails	11.00 to 12.00	
Heavy melting steel	9.50 to 10.00	
Steel rails for melting	9.50 to 10.50	
Car wheels	12.50 to 13.50	

	Per Net Ton	
No. 1 railroad wrought	9.00 to 10.00	
Cast borings	3.50 to 4.00	
Steel turnings	2.50 to 3.00	
Railroad cast	12.50 to 13.00	
No. 1 machinery	14.00 to 15.00	
Burnt scrap	8.00 to 9.00	
Iron axles	16.00 to 17.00	
Locomotive tires (smooth inside)	10.00 to 10.50	
Pipes and flues	4.50 to 5.50	

Chicago

CHICAGO, Nov. 8.

New business in most commodities in the iron and steel field has tapered off, but this is regarded as a natural reaction from the brisk buying which occurred on the eve of the threatened strike. It is also recognized that the general expectation of freight rate reductions is tending to hold back orders which can be deferred. This tendency toward renewed caution in buying has not yet had any material effect on furnace and mill operations and is regarded as a temporary pause in market activity.

Late information regarding the plans of the railroads indicate that they may be counted on to place large orders for iron and steel. Budgets for 1922 show large tonnages of rails, tie-plates and track fastenings, in many cases fully as large as the orders placed at the beginning of the current year. Liberal buying of cars and locomotives is also in prospect. It is to be noted that there is a sustained demand for structural steel with indications pointing to an increase rather than a diminution of fabricating work. There have been no material changes in the price situation, although signs of further weakness are to be noted in some directions.

Production in this district is on a slightly improved plane. The Illinois Steel Co. is operating at 47 per cent of ingot capacity and the Inland Steel Co. is on a 40 per cent basis.

Pig Iron.—Sales have been light during the past week, but inquiries are more numerous. A Milwaukee melter is in the market for 5000 tons of Northern No. 1 foundry for first half shipment and from 400 to 800 tons of 7 per cent silvery for December to June delivery. A Sheboygan consumer wants 400 tons of high phosphorus Southern foundry. Other inquiries include one for 200 tons of Southern charcoal and another for 200 tons of malleable for Michigan delivery. The appearance of inquiries for 1922 delivery brings up the question of what prices will be quoted for that shipment. While producers have not committed themselves on this point, it is intimated that one maker would accept orders for first quarter delivery at the present market. On the other hand, a recent sale of 500 tons of malleable for shipment over the next three months was closed at \$22 base furnace. In sharp contrast with this order is an unconfirmed report of a sale of 300 tons of Bessemer for early shipment at \$20, Chicago furnace. The warming up of an initial stack of the Iroquois plant of the Steel & Tube Co. of America is still under way and casts are expected to be obtained early next week. Charcoal iron has been more active

of late, numerous sales having been made, particularly in the Pittsburgh district, and a few, involving about 100 tons each, for shipment to Europe. The furnace at Wells, Mich., has gone in blast. Silvery has weakened, some material having been offered at the prices ruling before the recent advance by Jackson County producers. Occasional inquiries for Southern foundry are being received from melters who want that iron for their mixtures, and there is no longer any resale in this territory with which they can cover their requirements. Until freight rates are reduced, however, it is unlikely that much tonnage will be bought in the South.

Quotations on Northern foundry, high phosphorus malleable and basic irons are f.o.b. local furnace and do not include a switching charge averaging 70c. per ton. Other prices are for iron delivered at consumers' yards, or when so indicated, f.o.b. furnace other than local.

Lake Superior charcoal, averaging sil.	
1.50, delivered at Chicago.....	\$31.50 to \$33.50
Northern coke, No. 1, sil. 2.25 to 2.75	21.50
Northern coke, foundry, No. 2, sil.	
1.75 to 2.25.....	21.00
Northern high phos.....	21.00
Southern foundry, sil. 1.75 to 2.25....	25.67
Malleable, not over 2.25 sil.....	21.00
Basic.....	21.00
Low phos., Birmingham.....	32.00
Low phos., Eastern furnace, sil. 1 to 2	
per cent copper free.....	34.00
Silvery, sil. 8 per cent.....	34.82

Ferroalloys.—Aside from an inquiry for 50 tons of 50 per cent ferrosilicon on which \$60 delivered is said to have been quoted, there is no activity in the ferroalloys.

We quote 78 to 82 per cent ferromanganese, \$66.75, delivered; 50 per cent ferrosilicon, \$60, delivered; spiegeleisen, 18 to 22 per cent, \$36 to \$37, delivered.

Railroad Equipment.—The steel for the St. Paul cars placed with the Bettendorf Co., amounting to 13,000 tons of plates, shapes, bars and axles, will be rolled by the leading local independent. About 16,000 tons for the St. Paul cars to be built by the Haskell & Barker Car Co. is yet to be placed. The Western Pacific Corporation order with the Western Steel Car & Foundry Co. calls for 700 gondola cars with a 60-day option on 300 additional. These will require 16 tons of steel per car, the purchase of which has not yet been consummated. The Southern Pacific has ordered 50 locomotives of the 2-10-2 type from the Baldwin Locomotive Works. The Chicago & Eastern Illinois is inquiring for repairs on 500 national dump cars. The Burlington is asking for figures on the repair of 500 steel gondola cars and contemplates asking for repair prices on 500 box cars.

Sheets.—Local independent continues to operate all of its hot mills and because of business on its books, is unable to entertain many inquiries calling for prompt shipment.

Mill quotations are 3c. for No. 28 black, 2.25c. to 2.50c. for No. 10 blue annealed and 4c. for No. 28 galvanized, all being Pittsburgh prices, subject to a freight to Chicago of 38c. per 100 lb.

Jobbers quote: Chicago delivery out of stocks, No. 10 blue annealed, 3.38c.; No. 28 black, 4.15c.; No. 28 galvanized, 5.15c. Hoops and bands, 3.48c.

Rails and Track Supplies.—Further releases against rail contracts are reported, but the individual tonnages involved are relatively small, ranging from 1000 to 5000 tons. Orders for spikes and bolts are more liberal, but competition for this business is keen and price shading is more general. Spike orders ranging from 1000 to 3000 kegs have been placed, while the bolt orders average about one-quarter as large. The Missouri Pacific has bought 2000 kegs of spikes. Considerable tie plate business is at the point of closing.

Standard Bessemer and open-hearth rails, \$40; light rails rolled from new steel, 1.70c. to 1.75c. f.o.b. makers' mills.

Standard railroad spikes, 2.30c., Pittsburgh; track bolts with square nuts, 3.30c., Pittsburgh; tie plates, steel and iron, 2c., f.o.b. mill; angle bars, 2.40c., f.o.b. mill.

Plates.—The placing of car orders by the Chicago, Milwaukee & St. Paul and the Western Pacific Corporation has put a considerable tonnage of steel on local mill books. The inquiry of the Illinois Central for 4000 cars is expected to be closed soon and that will account for about 40,000 tons more. The Sinclair Oil Co. has awarded the 16 storage tanks for which it has been in-

quiring to an Eastern fabricator, and it is therefore probable that the steel will be bought from mills in the vicinity. In the aggregate, the demand for plates is still sub-normal and the price situation shows no change for the better.

The ruling mill quotations range from 1.75c. to 1.85c. Chicago. Jobbers quote 2.88c. for plates out of stock.

Structural Material.—Fabricators and mills are encouraged not only because of an increased number of structural lettings, but the large amount of work in prospect. Recent fabricating awards include:

Sinclair Refining Co., 16 storage tanks, 2700 tons, to Phoenix Iron Works Co.

Standard Oil Co., 20 stills, Wood River, Ill., 577 tons, to Petroleum Iron Works.

Commercial High School, Omaha, 1676 tons, to Christopher & Simpson Iron Works.

Kennewick-Pasco bridge over Columbia River, Washington, 994 tons, to American Bridge Co.

Colorado State Highway Department, through riveted truss spans, Los Animas, Col., 435 tons, to Hansell-Elcock Co.

Red Hill bridge over Russian River, Cal., 453 tons, to American Bridge Co.

Iowa Highway Commission, four highway spans, 164 tons, to Pittsburgh-Des Moines Steel Co.

Oregon Highway Commission, highway spans, 124 tons, wood construction substituted for steel.

Atlas Powder Co., Marshall, Texas, furnace building, machine shop, etc., 325 tons, to Worden Allen Co.

Munising, Mich., high school, 125 tons, to Milwaukee Structural Steel Co.

Prospective business includes:

Superstructure, Federal Reserve Bank, Minneapolis, 2000 tons, bids to be in by Nov. 11.

Belden Hotel, Chicago, Fridstein & Co., engineers, 3200 tons.

Missouri Pacific Railroad, three bridges, 330 tons; also a 150-ft. through riveted truss span, tonnage not given.

Link Belt Co., bridge tramway for Duquesne, Pa., light company, 600 tons.

Arkansas Bridge Co., Kansas City, Mo., double track riveted truss spans, 4000 tons.

Highway bridge, El Paso, Tex., V. L. Sullivan, contracting engineer, 180 tons.

Bars.—Demand for mild steel bars has fallen off. In the reinforcing field, a number of good-sized jobs have been closed, however. The Concrete Engineering Co., Omaha, will furnish 800 tons for the Omaha Commercial high school. The Corrugated Bar Co. will supply 100 tons for a waterworks plant at Ashland, Ky. Various pending highway jobs in Illinois call for an aggregate of 1500 tons. The H. O. Stone Engineering Co., St. Louis, has the contract for a grain elevator at Chester, Ill., involving 275 tons of rail carbon reinforcing bars which have not yet been placed. Demand for bar iron is slightly improved, railroad orders ranging from 100 to 200 tons having been reported.

The mill quotation on plain material ranges from 1.75c. to 1.85c., Chicago. Jobbers quote 2.88c. for materials out of warehouse.

Bolts and Nuts.—Further evidences of curtailment in the automobile industry have come to hand, with a corresponding contraction of bolt and nut orders from that source. Demand is generally light and discounts are still soft. Probably the largest pending inquiry is one from a local jobber calling for five carloads of hot-pressed nuts. For mill prices see finished iron and steel, f.o.b. Pittsburgh, page 1246.

Jobbers quote structural rivets, 3.68c.; boiler rivets, 3.78c.; machine bolts up to $\frac{3}{4}$ x 4 in., 60 per cent off; larger sizes, 55 off; carriage bolts up to $\frac{3}{4}$ x 6 in., 55 off; larger sizes, 50 and 5 off; hot pressed nuts, square and hexagon tapped, \$3 off; blank nuts, \$3.25 off; coach or lag screws, gimlet points, square heads, 60 per cent off. Quantity extras are unchanged.

Cast Iron Pipe.—Detroit is expected to take definite action Nov. 8 on the bids submitted last week. Inquiries are less numerous, as is to be expected at this season, but there is still considerable tonnage unclosed. Recent awards include:

Ferndale, Mich., 850 tons, divided between American Cast Iron Pipe Co. and James B. Clow & Sons.

Stanton, Iowa, 100 tons, to National Cast Iron Pipe Co.

Taylor, Wis., 38 tons, to American Cast Iron Pipe Co.

Pending business includes:

Springfield, Ohio, 907 tons, bids in Nov. 5.

Fairfield, Iowa, 275 tons of 12-in., Nov. 4.

Montgomery County Commissioners, Dayton, Ohio, 1200 tons of 4 to 12-in., Nov. 10.

Parsons, Kans., 168 tons of 4 and 6-in., also alternate bids on cast iron, steel and reinforced concrete on 17,235 ft. of 16-in. and 17,600 ft. of 20-in., Nov. 7.

We quote per net ton, f.o.b. Chicago, ex-war tax, as follows: Water pipe, 4-in., \$45.60 to \$47.10; 6-in. and above, \$42.60 to \$44.10; class A and gas pipe, \$3 extra.

Wire Products.—Rumors of probable advances have brought in considerable business, particularly from jobbers who wish to protect themselves over the maximum contract period, which is 60 days. Railroads also are buying more liberally—two, three and four carloads at a time as against their usual purchases of single carload lots. Their orders are principally for nails. For mill prices see finished iron and steel, f.o.b. Pittsburgh, page 1246.

We quote warehouse prices f.o.b. Chicago: No. 9 and heavier black annealed wire, \$3.48 per 100 lb.; No. 9 and heavier bright basic wire, \$3.63 per 100 lb.; common wire nails, \$3.63 per 100 lb.; cement coated nails, \$3.05 per keg.

Old Material.—Price tendencies are mixed with sentiment somewhat improved. Mills are evincing greater interest in the market by asking for quotations on material, but aside from a moderate purchase of heavy melting at advanced levels, no buying has resulted. Cast iron car wheels appear to be weaker, 100 tons having been bought by a consumer at \$16, delivered. On the whole, the market is slow, although somewhat more active than a week ago. Railroad offerings include the Pere Marquette, 3000 tons; the Union Pacific, 3000 tons, including 1100 tons of mixed scrap; the Soo Line, 500 tons; the Pullman Co., 1000 tons.

We quote delivery in consumers' yards Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Iron rails	\$17.00 to \$17.50
Relaying rails	25.00 to 30.00
Car wheels	16.00 to 16.50
Steel rails, rerolling	13.50 to 14.00
Steel rails, less than 3 ft.	13.75 to 14.25
Heavy melting steel	12.50 to 13.00
Frogs, switches and guards cut apart ..	12.50 to 13.00
Shoveling steel	12.00 to 12.50
Low phos. heavy melting steel	15.50 to 16.00
Drop forge flashings	8.00 to 8.50
Hydraulic compressed sheet	8.50 to 9.00
Axle turnings	9.00 to 9.50

Per Net Ton	
Iron angles and splice bars	15.00 to 15.50
Steel angle bars	12.00 to 12.50
Iron arch bars and transoms	15.50 to 16.00
Iron car axles	20.50 to 21.00
Steel car axles	14.50 to 15.00
No. 1 busheling	9.50 to 10.00
No. 2 busheling	6.25 to 6.75
Cut forge	11.50 to 12.00
Pipes and flues	8.00 to 8.50
No. 1 railroad wrought	12.50 to 13.00
No. 2 railroad wrought	11.50 to 12.00
Steel knuckles and couplers	13.00 to 13.50
Coil springs	14.00 to 14.50
No. 1 machinery cast	13.75 to 14.25
No. 1 railroad cast	13.50 to 14.00
Low phos. punchings	12.00 to 12.50
Locomotive tires, smooth	11.00 to 11.50
Machine shop turnings	3.50 to 4.00
Cast borings	6.00 to 6.50
Stove plate	12.75 to 13.25
Grate bars	11.50 to 12.00
Brake shoes	11.50 to 12.00
Railroad malleable	13.50 to 14.00
Agricultural malleable	13.50 to 14.00

A. W. Blodgett, secretary Grand Rapids Metals Trades Association, Grand Rapids, Mich., reports that business is improving. The number of working employees has increased in the past four months from 1100 to 1500. In normal times 3500 hands are working.

The annual meeting of the Hoover Steel Ball Co., Ann Arbor, Mich., has elected the following board of directors: C. L. Anderson, William Arnold, Jr., Henry W. Douglas, R. T. Dobson, M. J. Fritz, Louis P. Hall, C. W. Lightall, Walter C. Mack and Henry C. Rince-man.

Philadelphia

PHILADELPHIA, Nov. 7.

Fresh developments in the iron and steel markets are few, but one of the most encouraging is the promise of fairly large rail rollings in 1922. The New York Central has come into the market for 100,000 to 200,000 tons for next year, the Pennsylvania Railroad has indicated that its requirements will be 150,000 tons, the Norfolk & Western, 40,000 tons, and the Philadelphia & Reading, 20,000. The order placed with the Baldwin Locomotive Works for 50 locomotives by the Southern Pacific Railroad is one of the largest domestic contracts of its kind since the war. Railroads in this territory have done very little contracting for new cars or the repair of old cars, but there are hopeful expectations that such business will develop within the near future.

The volume of steel business coming to Eastern mills is meager, and operations are merely holding their own in comparison with October. In the district east of Pittsburgh the Cambria works of the Midvale Steel & Ordnance Co. and the plants of the Bethlehem Steel Co. are showing the best operation, the Cambria works having averaged about 50 per cent in the past month.

In pig iron there is greater interest in first-quarter contracts with furnaces not anxious to quote. A cast-iron pipe company has inquired for 2000 to 4000 tons of No. 2 plain iron for that period, and is reported to have been quoted \$21 and \$21.50, furnace. Quotations of \$4 on furnace coke for first quarter cause furnace operators to adopt a cautious policy in selling beyond Jan. 1.

An interesting event in the scrap market was the purchase by the Midvale Steel & Ordnance Co. for its Cambria works of 10,000 tons of heavy melting steel, the first purchase of steel scrap by this plant since before the war. The price paid was \$15, delivered.

Pig Iron.—As an indication of the extreme quietness of the foundry iron market, one furnace company reports it has not taken an order of any importance in three weeks. While there seemed a prospect of a railroad strike, many consumers urged acceleration of shipments, with the result that most of them have more iron than is needed for day-to-day requirements. Moreover, foundries that are operating are generally covered until the end of the year and first quarter business has not opened up because of the unwillingness of furnaces to quote, though some buyers are making informal inquiry. A cast iron pipe foundry, to obtain protection on some work on which it is bidding, has asked prices on 2000 to 4000 tons of No. 2 plain iron for first quarter. Four furnaces were asked to bid, one declining to do so, and the others putting in prices of \$21 and \$21.50, furnace, equivalent to \$22.50 and \$23, delivered. The disposition not to quote for first quarter is due partly to the prospect of higher coke, some Connellsville interests having named \$4 as their idea of first quarter price. While the dullness of the market is generally ascribed to expectation of freight rate reductions, the approach of the end of the year and inventory period is probably also an important element in the situation. Quotations of district furnaces for prompt shipment are quite uniform at \$21 and \$21.50 for No. 2 plain and \$21.50 and \$22 for No. 2X, the exact price depending upon the size of the inquiry and the freight rate advantage which competitors may have. Steel-making iron is not in demand. We note the sale of 400 tons of malleable iron at \$24, furnace, with a freight rate to destination of \$1.40.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia, and include freight rates varying from 84 cents to \$1.54 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	\$21.90 to \$22.54
East. Pa. No. 2X, 2.25 to 2.75 sil.	22.84 to 23.54
Virginia No. 2 plain, 1.75 to 2.25 sil.	27.74 to 28.74
Virginia No. 2X, 2.25 to 2.75 sil.	28.24 to 29.74
Basic deliv. eastern Pa.	20.50 to 21.00
Gray forge	22.50 to 23.00
Malleable	25.40 to 26.00
Standard low phos. (f.o.b. furnace)	36.50
Copper bearing low phos. (f.o.b. furnace)	35.00

Ferroalloys.—Eastern makers of ferromanganese have stiffened their quotations and now decline to shade \$58.35, seaboard, which is also the price quoted by importers of British alloy. Spiegeleisen is quoted from \$25 to \$27, furnace.

Billets.—Orders for billets are few. Open-hearth rerolling billets are being sold at \$29, Pittsburgh, and this might have been shaded \$1 a ton. Forging billets are \$5 higher.

Plates.—The Baldwin Locomotive Works has purchased about 1000 tons of plates for 50 locomotives for the Southern Pacific Railroad. The plate market is quiet and prices continue quiet. Attractive tonnages can be placed at 1.50c., Pittsburgh, while small lots are generally quoted at 1.60c., Pittsburgh.

Structural Material.—One fabricating company with plants in the East is reported to have closed contracts for 18,000 tons of structural work within the past week. Shapes are quoted from 1.50c. to 1.60c., Pittsburgh, the lower price applying usually only to desirable lots.

Bars.—The steel bar market continues easy, especially on reinforcing steel. On the latter, 1.50c., Pittsburgh, has been shaded. On merchant steel bars quotations range from 1.50c. to 1.60c., Pittsburgh. There is little demand for bar iron, which is nominally quoted at 1.60c., Pittsburgh, though this is being shaded in some instances.

Sheets.—The sheet market is somewhat mixed. Low prices reported in some quarters are offset by fairly firm prices quoted by other mills. It appears that blue annealed sheets are being purchased from 2.25c. to 2.50c., Pittsburgh; black sheets from 2.90c. to 3c., and galvanized sheets, quoted at 4c., have also been shaded. Some sales are being made at the higher prices.

Rivets.—To meet competition, Eastern makers of rivets have reduced prices 10c. per 100 lb., the present quotations being 2.40c. for structural and 2.50c. for boiler quality, Pittsburgh.

Warehouse Business.—No important gain in sales of steel out of stock is reported. Prices are unchanged, with the exception that blue annealed sheets are now quoted on the basis of 3.50c. per lb. We quote for local delivery as follows:

Soft steel bars and small shapes, 2.75c.; iron bars (except bands), 2.50c.; round edge iron, 2.80c.; round edge steel, iron finish, $1\frac{1}{2}$ x $\frac{1}{2}$ in., 3.05c.; round edge steel planished, 3.80c.; tank steel plates, $\frac{3}{4}$ -in. and heavier, 2.85c.; tank steel plates, 3/16-in., 3.035c.; blue annealed steel sheets, No. 10 gage, 3.50c.; light black sheets, No. 28 gage, 4c.; galvanized sheets, No. 28 gage, 5c.; square twisted and deformed steel bars, 2.75c.; structural shapes, 2.85c.; diamond pattern plates, $\frac{3}{4}$ -in., 4.60c.; 3/16-in., 4.785c.; $\frac{1}{4}$ -in., 4.90c.; spring steel, 4.10c.; round cold-rolled steel, 3.75c.; squares and hexagons, cold-rolled steel, 4.25c.; steel hoops, No. 13 gage and lighter, 3.65c.; steel bands, No. 12 gage to 3/16-in., inclusive, 3.40c.; iron bands, 3.90c.; rails, 2.75c.; tool steel, 8c.; Norway iron, 5c.; toe steel, 4.50c.

Old Material.—The Midvale Steel & Ordnance Co. last Thursday came into the market for heavy melting steel for the Cambria works and purchased 7000 tons before the end of the week and about 3000 tons early this week. This is the first purchase of steel scrap for the Johnstown plant since before the war. When its Bessemer plant is in operation, the Cambria works is self-contained as to scrap, but as this department has not been active of late, the company found it necessary to supplement its own supply and may continue as a regular buyer for a time. The use of scrap at Johnstown has been increased because of the high cost of making pig iron. Purchases were made at \$15, delivered, which establishes a new high mark for the present upward movement of prices. The effect upon the Philadelphia district market is to restrict the quantity of heavy melting steel to be had at the prices which the mills have been offering, namely \$12 to \$13. Where freight rates are advantageous, available stocks of steel scrap have naturally been moved to Johnstown. However, a purchase of 200 tons was made last week by an eastern Pennsylvania plate mill at \$12 delivered, but the shipping point was fairly close by. Railroad wrought is firmer, due to sales to a Troy, N. Y., consumer at \$18, delivered. The effect of these sales is to

deflect New England railroad wrought to Troy. The local market is quoted at \$16.50 to \$17. Cast borings are also up about 50c. a ton.

No. 1 heavy melting steel.....	\$12.00 to \$13.00
Scrap rail	12.00 to 13.00
Steel rails, rerolling.....	16.50 to 17.00
No. 1 low phos., heavy 0.04 and under	17.00 to 18.00
Car wheels	17.50 to 18.00
No. 1 railroad wrought.....	16.50 to 17.00
No. 1 yard wrought.....	14.00 to 14.50
No. 1 forge fire.....	10.50 to 11.00
Bundled sheets (for steel works)...	9.50 to 10.00
No. 1 busheling.....	12.00 to 13.00
No. 2 busheling.....	10.00 to 11.00
Turnings (short shoveling grade for blast furnace use).....	9.00 to 9.50
Mixed borings and turnings (for blast furnace use)	9.00 to 9.50
Machine-shop turnings (for rolling mill and steel works use).....	9.50 to 10.50
Heavy axle turnings (or equivalent)	10.00 to 10.50
Cast borings (for rolling mills).....	11.50 to 11.75
Cast borings (for chemical plants)...	12.50 to 13.00
No. 1 cast.....	17.50 to 18.00
Railroad grate bars.....	14.50 to 15.00
Stove plate (for steel plant use)....	14.50 to 15.00
Railroad malleable	14.50 to 15.00
Wrought iron and soft steel pipes and tubes (new specifications).....	13.50 to 14.00
Iron car axles.....	No market
Steel car axles	No market

OPEN PRICE ASSOCIATIONS

Federal Judge Carpenter Says Organizations Are Not Obnoxious to Anti-Trust Laws

In the case of the United States Government against the American Linseed Co. et al., decided at Chicago on Nov. 1 by Judge Carpenter in the Federal District Court, a victory for the defendants was scored, the opinion of the court being strongly in favor of "open-price" associations.

The facts and reasons are fully and clearly set forth in the court's opinion. The members of the Linseed Oil Association entered into a contract providing for, among other things, the collection and distribution, from and to the members of the association, of many trade statistics. The principal issue in the case was the effect of the filing with the central bureau by the various members of their respective price lists and immediately reporting to the bureau any current quotations deviating from the price lists. These quotations were sent to the bureau by telegraph, and immediately forwarded to all of the members of the association. The Government contended that the natural, direct and immediate effect of the reporting and interchanging of such price lists and quotations was an artificial uniformity of prices, meaning thereby that the uniform prices were brought about through an agreement necessarily resulting from such a course of conduct, and, consequently, in violation of the Federal anti-trust laws.

The court has found that the reporting of prices in such a manner, the holding of monthly meetings of the members, the discussion of prices and business conditions are not unlawful, and, although quick and accurate information of what other competitors are charging naturally leads to uniformity in price, it does not necessarily indicate that there is an agreement among the competitors to charge the same price.

The court finds that an "open price" association plan is not obnoxious to the anti-trust laws, and that there is nothing inherently wrong in an agreement among producers in a certain line to furnish each other their prices, and not to make any sale deviating from their price lists without immediately notifying all the others. Also, there is no tenable reason for holding that an exchange, such as boards of trades, etc., is legal, which exchanges send out reports of actual sales, and an "open price" association is illegal, which association gave out price lists and deviations therefrom.

The court says, in substance, that if every association should be dissolved merely because it afforded an opportunity for the members to fix prices, then the Court, with equal propriety, could be asked to dissolve any lunch club where business men meet.

BELGIAN EXPORTS HEAVY

About 75 Per Cent of Output Exported—Union with Luxemburg Threatening Belgian Pig Iron Industry

(Special Correspondence)

CHARLEROI, BELGIUM, Oct. 22.—The opposition of the Belgian steel federation to the proposed customs and economic union with Luxemburg, the ratification of which will shortly be considered, seems to have entered a new stage. Indications are that the government is contemplating the abandonment of the present system of free trade in favor of protection. Negotiations are reported to be in progress between the government and the steel industry aiming at a compromise. No authoritative statement has been made as yet, but it is stated in usually well-informed circles that the government has intimated its intention of changing to a policy of protection if the federation will discontinue its present anti-ratification propaganda. There is little doubt that the suggested protection is largely directed against countries with low exchange rates, especially Germany, although the importance of German competition in the domestic market is often over-rated.

It should be borne in mind that approximately 75 per cent of the Belgian iron and steel output is finding its way to foreign markets which, of course, would not be affected by the proposed measures. Whatever may be the policy ultimately decided upon by the steel industry, it seems certain that the bill will be ratified although the industry is not convinced of the effectiveness of the proposed protection. On the contrary, the favorable conditions of costs under which the Luxemburg and French blast furnaces are operating because of considerably lower freight rates on coal and ores have never been more apparent than lately. The idea is slowly gaining ground in industrial circles that with the removal of customs barriers between Belgium and Luxemburg, economic necessities may lead to a discontinuance of pig iron production in Belgium in favor

of the pig iron industry in Luxemburg, which would supply the Belgian manufacturers.

The pig iron market has been enlivened by increased domestic and foreign demand. The tone of the market is rather firm as, compared with the British price of 120s. for No. 3 G.M.B. foundry iron, Belgian material can be quoted at about 100s., c.i.f. British port. No. 1 foundry iron is quoted at 265 fr.; No. 2 at 250 fr.; No. 3 at 240 fr. Ordinary basic is named at 215 fr., while special grades are quoted at 230 fr. Business in British hematite has been stimulated by the reduction in quotations to 125s., f.o.b. British port.

A feature of the semi-finished material market is the acute shortage of supplies caused by the extended terms of delivery stipulated by Lorraine and Luxemburg producers. Incoming business in the finished iron and steel market is sufficiently large to keep mills occupied for some time to come, but there are complaints that the decrease in export shipments is not quite compensated by the increased domestic demand.

Mild steel bars are quoted at 450 fr. for export compared with a domestic price of 445 fr., while No. 2 wrought iron bars brought 400 fr. for export. Medium sheets and light plates are tending upward, but less satisfactory conditions obtain in the heavy sheet market owing to the shortage of raw material and keen foreign competition. We quote as follows: Heavy sheets, basic, 495 fr.; open hearth, 535 fr.; medium gages, basic, 590 fr.; light plates, 800 to 900 fr.

In the rail market the recent government order for 42,000 tons placed with the Ougrée-Marihaye Co. and Angleur is noteworthy. Rail quotations were around 435 fr. A quieter tone has prevailed in the wire, bolt and nut market, but the pipe market is showing distinct signs of stiffening, apparently because German pipe mills are filled up.

The September output returns show a decline in pig iron production by 4000 tons compared with August, the respective figures being 40,460 tons in September against 44,510 tons in August. The figures for other products are as follows: Crude steel, 31,270 and 25,150 tons; steel castings, 3240 and 3130 tons; finished steel, 52,180 and 46,020 tons; finished iron, 12,230 and 8580 tons, respectively.

British Pig Iron Sharply Reduced

(By Cable)

LONDON, ENGLAND, Nov. 2.

Cleveland pig iron has been further reduced. No. 1 foundry iron is now £5 15s. (\$22.65) per gross ton in place of £7 (\$27.58). No. 3 G. M. B. is £5 10s. (\$21.67) in place of £6 (\$23.64). No. 4 foundry iron is £5 5s. (\$20.69) in place of £5 14s. (\$22.46). No. 4 forge iron is £5 (\$19.70) in place of £5 5s. (\$20.69). All of these prices apply to iron both for home consumption and for export.

[Note: Conversion at \$3.94 per £1.—Editor.]

Steel Prices Reduced—Cost of Living Lower—Depression in Shipbuilding Industry

LONDON, ENGLAND, Oct. 19.—The unemployment problem continues to receive careful consideration by the government and elaborate schemes are being drawn up for relief, but all to the detriment of the much harassed taxpayer. There is work to be done and many men could find it if they would submit to reasonable wages. The cost of living is on the down grade and the latest report of the Ministry of Labor shows a decline of 10 per cent in September, making the present rate 110 per cent above the July, 1914, level. The weekly wage bill was £240,000 down.

As to the iron and steel industry, little can be said of an encouraging nature except that steel makers have realized they must beat the continent to get orders and have cut prices to a considerable extent regardless of costs. Fuel does not come down in price as rapidly as desired and while Durham blast furnace coke is selling at around 31s., delivered, pig iron producers declare that 20s. is the maximum economic

level they will pay. Steps are being taken in the right direction by the railroads and rates on iron ore, ironstone and limestone will be reduced as and from Nov. 1. The total number of Cleveland furnaces now blowing is only 18 out of a total of 72, and of these nine are working on hematite iron. Consumers are slow to purchase while such a price uncertainty exists and the only sales made are for immediate requirements, which in the present state of trade are not of much account. Export business in pig iron is quite stagnant, consumers being able to purchase from the continent at cheaper rates.

Steel prices have been reduced. Ship plates are now £10 10s., shapes £10 and heavy steel rails £10 10s., all per ton delivered home consumers' works. One result of this has been the requests on the part of purchasers of continental material to have their orders cancelled and it will be interesting to see what is the next move. Certain it is that purchasers will prefer to place orders in this country where deliveries are certain, apart from strikes, etc., than overseas, where already shipments are becoming in arrears, now that the price margin has been narrowed down.

Lloyd's Register of Shipbuilding returns give some interesting facts as to the depression in that trade. The merchant tonnage under construction at the end of last month was 700 vessels of a gross tonnage of 3,282,972 tons, a reduction on the quarter of 247,000 tons, and 448,000 tons less than a year ago. Of this year's total 731,000 tons have been suspended and 457,000 tons delayed in completion. The prospect for the future is most unfavorable, as the amount of tonnage on which work has been commenced during each quarter of this year has shown considerable decreases. In the March quarter the decrease as compared to the previous quarter was 113,000 tons, in the June quarter a further 324,000 tons, while in the September quarter only 51,343 tons were commenced.

IRON AND INDUSTRIAL STOCKS

Buying Based on Future Rather Than Present Industrial Conditions

While prices for iron and industrial shares, as quoted from day to day, disclose some irregularity, the general tendency continues upward. In some instances new high records for 1921 were established since last reports. In a few isolated cases, the advance in prices is accompanied by encouraging reports pertaining to the particular company, but in a majority the higher values are based largely on buying of dividend paying shares, attracted by the continued downward tendency of money rates and the freer supply of loanable funds. The fact that steel mills have issued unfavorable earnings statements has failed to check buying of steel shares, and the same is true of automotive and other concerns. Investment buying today evidently is founded not on past or current developments, but on future. The weakness of wheat is conspicuous, yet the further downward readjustment of Federal Reserve discount rates, and the strength of Government and railroad bonds strongly suggests the readjustment of industry in general is progressing satisfactorily.

The range of prices on active iron and industrial stocks from Monday of last week to Monday of this week was as follows:

Allis-Chalm. com.	33 1/2 - 34 3/4	Gulf States Stl...	36 1/2 - 39 3/4
Allis-Chalm. pf.	77 - 77 1/2	Int. Har. com...	74 3/4 - 79
Am Can com...	28 - 30 3/4	Lackawanna Stl...	41 - 43 1/2
Am Can pf.....	85 - 88	Midvale Stl.....	24 - 25 3/4
Am. C. & F. com.	129 3/4 - 132 1/4	Nat. Acme.....	12 1/2 - 13 3/4
Am. Loco. com...	90 3/4 - 92 1/2	Nat. E. & S. com.	41 1/2 - 42 1/4
Am. Loco. pf.....	107 1/2 - 110	Nova Scotia Stl...	21 - 21 1/4
Am. Radi'r com.	75 1/2 - 80	Pittsburgh Stl. pf.	82 - 83 1/2
Am. Ship com...	5 3/4 - 6 3/4	Pressed Stl. com.	59 1/4 - 60 1/2
Am. Stl. Fd. com.	25 1/2 - 28 1/2	Pressed Stl. pf...	86 1/2 - 87 1/2
Am. Stl. Fd. pf.	83 3/4 - 85	Ry. Stl. Spg. com.	84 - 84 3/4
Bald. Loco. com.	89 3/4 - 92 1/2	Replogle Stl.....	20 1/2 - 21
Bald. Loco. pf...	98 - 99	Republic com...	49 - 51 1/4
Beth. Stl. com...	54 1/2 - 55 1/2	Republic pf.....	80 1/2 - 83
Beth. Stl. cl. B.	55 1/2 - 57	Sloss com.....	38 - 39
Beth. Stl. 8% pf.	101 1/4 - 103 1/4	Un. Alloy Stl....	25 - 26
Chi. Pneu. Tool...	54 - 55 1/2	U. S. Stl. com...	80 1/4 - 81 1/4
Colo. Fuel.....	24 - 25 1/4	U. S. Stl. pf....	109 1/4 - 111
Cruc. Stl. com...	62 3/4 - 66 1/4	Vanadium Stl....	31 1/4 - 33 3/4
Cruc. Stl. pf.....	85 - 86 1/2	Va. I. C. & Coke.	85 - 86 1/2
Gen. Electric...	131 1/4 - 135 3/4	Westingh's Elec.	45 1/4 - 46 1/4
Gt. No. Ore cert.	31 - 32		

Industrial Finances

The Dobbins Core Drill Co., Inc., 147 West Forty-second Street, New York, has filed schedules in bankruptcy, listing liabilities of \$28,851 and assets of \$1800.

A petition in bankruptcy has been filed against the Standard Garage Equipment Co., 318 Rogers Avenue, Brooklyn.

The Holm Radiator Corporation, Milwaukee, has filed a petition in bankruptcy, with liabilities stated as \$30,118 and assets, \$37,244.

The Trumbull-Vanderpool Electric Co., Litchfield, Conn., manufacturer of electrical equipment, has increased its capital to \$250,000.

The Maibohm Motors Co., 66 Leonard Street, New York, with plant at Sandusky, Ohio, has filed a petition in bankruptcy with liabilities stated as \$681,640, and assets, \$559,124. The company took over the business of the Maibohm Wagon Co., and has been specializing in the manufacture of six-cylinder automobiles and trucks. The Sandusky plant has a rated capacity of 50 complete automobiles per day.

The Harbison-Walker Refractories Co. has declared the regular quarterly dividends of \$1.50 on both the common and preferred stocks. The common dividend is payable Dec. 1, to stockholders of record Nov. 19, and the preferred Jan. 20, to stockholders of record Jan. 10.

Directors of the Ford Motor Co. of Canada, Windsor, Ont., has authorized payment of a 15 per cent cash dividend on Nov. 15 to stockholders of record Nov. 3. This is the second 15 per cent cash dividend this year. The company has \$7,000,000 stock outstanding and the dividend will amount to \$1,050,000.

After allowing for expenses, maintenance, depreciation, interest and taxes for the three months ended Sept. 30, last, the Pierce Arrow Motor Car Co. shows an operating loss of \$2,109,999, as against an operating profit of \$592,827 for the corresponding period last year.

The Studebaker Corporation and its subsidiary companies for the nine months to Sept. 30, report a net profit, after interest and Federal taxes, of \$9,644,326, which, after preferred dividends is equivalent to \$15.21 a share on the \$60,000,000 common stock. For the corresponding period last year the company earned \$15.35 a share.

Plans of New Companies

The Replacement Parts Co., 801 Beacon Street, Boston, 17, Mass., recently incorporated, will be a New England sales agent for the Richmond hammered piston rings, manufactured by Richmond Piston Ring Co., Richmond, Ind., and other parts.

The Wickey Battery Co., East Chicago, Ind., recently incorporated, manufactures electric batteries. The plant is equipped and doing business.

The Pequea Electric Co., recently incorporated, R. F. D. No. 1, Willow Street, Pa., has purchased from the Farmers' Electric Co. the entire electric lighting system south of Martindale, Lancaster County, Pa. All necessary equipment has been ordered.

The Fourchime Auto Whistle Co., successor to Hall Mfg. Co., 23 Marshall St., Newark, N. J., intends to manufacture its own product but may find it necessary to have some contract work done. It has enough machinery to take care of its immediate needs.

The Leafless Spring Co., Grand Rapids, Mich., was organized to market the Leafless auto spring which is entirely new, for Ford cars. The spring is to be manufactured in the plant of the Lyons Machine & Tool Co., Muskegon, Mich. Drop forgings and castings will be purchased outside, but all machine work and assembling will be done by the Lyons company.

St. Lawrence Boat Works, Inc., Ogdensburg, N. Y., was originally the A. G. Spalding St. Lawrence Boat Works. The plant was subsequently owned and used for manufacturing high grade motor boats and other craft. As the new company has taken the plant over from Mr. Leyare, who continues as general superintendent of boat building, the company is not in need of equipment at the present time but may be later if business expands.

The Phoenix Iron Works Co., Meadville, Pa., and Oakland, Cal., has opened a Western office in the Flaughter Building, Dallas, Tex., temporarily in charge of K. B. Thorndike.

Trade Changes

On Nov. 1 the Steel Sales Corporation, Jefferson and Adams streets, Chicago, became exclusive and direct sales representative of the Wickwire Spencer Steel Corporation, Worcester, Mass., and Buffalo, for Illinois, Iowa, Missouri, Wisconsin, Minnesota and Indiana. The company's own sales office and warehouse will continue to operate as formerly at 215 West Ontario Street, in charge of J. J. Collins, where it will carry in stock for the hardware jobbing trade of Chicago and the Middle West miscellaneous hardware products.

The Decatur Bridge Co., Decatur, Ill., has removed its Chicago office to the Continental & Commercial Bank Building. Carl R. Dick, district sales engineer, and H. H. Cosley, contracting engineer, are in charge.

Benjamin Briscoe, who recently severed his connection with Briscoe Motors, Jackson, Mich., has organized and incorporated an automotive engineering company to do business in Detroit, with offices in the Book Building. Capital stock is \$205,000, and \$100 shares of common stock. The company is known as the Briscoe & Stahl Co.

The Arrow Machinery Co., 234 North Third Street, Philadelphia, new and used mechanical equipment, has just begun business at the above address, dealing particularly in machine tools, shop equipment, including small tools. It would like to have catalogs, price lists and lowest dealers discount sheets from manufacturers. The manager has been a manufacturer of sheet metal specialties for many years, and of the Columbian safety air gun; and was later manager of the Metalform Tool & Stamping Co., maker of jigs, fixtures, tools and dies.

Unfavorable Year for Carbon Steel Co.

The annual report of the Carbon Steel Co., Pittsburgh, for the year ended Oct. 1, has been issued. Because operations have been suspended during the greater part of the year in most of the departments, the net results for the year were very unfavorable, according to Charles McKnight, president of the company. During the period in which operations were carried on the results show a manufacturing profit of \$74,793. These profits, however, were considerably more than offset by idle plant expenses. There was a net loss from operations, including interest on borrowed money, of \$544,399. Dividends on the various classes of stock of the company were suspended last June. The surplus on Oct. 1, 1920, was \$3,481,302. This has been reduced to \$2,119,355 on Sept. 26, 1921.

Prices Finished Iron and Steel, f.o.b. Pittsburgh

Freight Rates

Freight rates from Pittsburgh on finished iron and steel products, in carload lots, to points named, per 100 lb., are as follows:

Philadelphia, domestic...	\$0.35	Kansas City	\$0.815
Philadelphia, export...	0.265	Kansas City (pipe)...	0.77
Baltimore, domestic...	0.335	St. Paul	0.665
Baltimore, export	0.255	Omaha	0.815
New York, domestic...	0.38	Omaha (pipe)	0.77
New York, export	0.285	Denver	1.35
Boston, domestic	0.415	Denver (wire products)	1.415
Boston, export	0.285	Pacific Coast	1.665
Buffalo	0.295	Pacific Coast, ship plates	1.335
Cleveland	0.24	Birmingham	0.765
Detroit	0.325	Jacksonville, all rail...	0.555
Cincinnati	0.325	Jacksonville, rail and	
Indianapolis	0.345	water	0.46
Chicago	0.38	New Orleans	0.515
St. Louis	0.475		

The minimum carload to most of the foregoing points is 36,000 lb. To Denver the minimum loading is 40,000 lb., while to the Pacific Coast on all iron and steel products, except structural material, the minimum is 80,000 lb. On the latter item the rate applies to a minimum of 50,000 lb., and there is an extra charge of 9c. per 100 lb. on carloads of a minimum of 40,000 lb. On shipments of wrought iron and steel pipe to Kansas City, St. Paul, Omaha and Denver, the minimum carload is 46,000 lb. On iron and steel items not noted above the rates vary somewhat and are given in detail in the regular railroad tariffs.

Rates from Atlantic Coast ports (i.e., New York, Philadelphia and Baltimore) to Pacific Coast ports of call on most steamship lines, via the Panama Canal, are as follows: Pig iron, 55c.; ship plates, 75c.; ingot and muck bars, structural steel, common wire products, including cut or wire nails, spikes and wire hoops, 75c.; sheets and tin plates, 60c. to 75c.; rods, wire rope, cable and strands, \$1; wire fencing, netting and stretcher, 75c.; pipe, not over 8 in. in diameter, 75c.; over 8 in. in diameter, 2 1/2 c. per in. or fraction thereof additional. All prices per 100 lb. in carload lots, minimum 40,000 lb.

Structural Material

I-beams, 3 to 15 in.; channels, 3 to 15 in.; angles, 3 to 6 in., on one or both legs, 1/4 in. thick and over, and tees, structural sizes, 1.50c. to 1.65c.

Sheared plates, 1/4 in. and heavier, tank quality, 1.50c. to 1.65c.

Wire Products

Wire nails, \$2.90 base per keg; galvanized, 1 in. and longer, including large-head barbed roofing nails, taking an advance over this price of \$1.25 and shorter than 1 in., \$1.75; bright Bessemer and basic wire, \$2.60 per 100 lb.; annealed fence wire, Nos. 6 to 9, \$2.60; galvanized wire, \$3.10; galvanized barbed wire, \$3.55; galvanized fence staples, \$3.55; painted barbed wire, \$3.05; polished fence staples, \$3.05; cement-coated nails, per count keg, \$2.45; these prices being subject to the usual advances for the smaller trade, all f.o.b. Pittsburgh, freight added to point of delivery, terms 60 days, net, less 2 per cent off for cash in 10 days. Discounts on woven-wire fencing are 68 to 70 1/2 per cent off list for carload lots, 67 to 69 1/2 per cent for 1000-rod lots, and 66 to 68 1/2 per cent for small lots, f.o.b. Pittsburgh.

Bolts, Nuts and Rivets

Large structural and ship rivets.....\$2.25 to \$2.40 base
Large boiler rivets.....2.35 to 2.50 base
Small rivets, 70, 10 and 5 to 70, 10 and 7 1/2 per cent off list
Machine bolts, small, rolled threads.....

Machine bolts, small, cut threads.....70, 10 and 5 per cent off list
Machine bolts, larger and longer.....65, 10 and 5 per cent off list
Carriage bolts, 3/4 in. x 6 in.:

Smaller and shorter rolled threads.....
65, 10 and 10 per cent off list
Cut threads, 65 and 10 per cent off list
Longer and larger sizes.....65 and 10 per cent off list
Lag bolts, 70 and 10 to 70, 10 and 5 per cent off list
Plow bolts, Nos. 1, 2 and 3 heads.....60 and 10 per cent off list
Other style heads.....20 per cent extra
Machine bolts, c.p.c. and t. nuts, 3/4 in. x 4 in.:

Smaller and shorter.....65 and 5 per cent off list
Larger and longer sizes.....65 per cent off list
Hot pressed sq. or hex. blank nuts.....\$5.50 off list
Hot pressed nuts, tapped.....\$5.00 off list
C.p.c. and t. sq. or hex. blank nuts.....\$5.25 off list
C.p.c. and t. sq. or hex. blank nuts, tapped.....\$5.00 off list
Semi-finished hex. nuts:

1/4 in. to 9/16 in. inclusive.....80, 10 and 10 per cent off list
Small sizes S. A. E.....80, 10, 10 and 10 per cent off list
1/2 in. to 1 in. inclusive, U. S. S. and S. A. E.

70, 10 and 10 per cent off list
Stove bolts in packages.....80, 10 and 5 per cent off list
Stove bolts in bulk.....80, 10 and 7 1/2 per cent off list
Tire bolts, 65, 10 and 10 per cent off list
Track bolts, carloads.....3.25c. to 3.50c. base
Track bolts, less than carloads.....4.25c. to 4.50c.

Upset Square and Hex. Head Cap Screws

1/4 in. and under.....75 and 10 to 80 and 10 per cent off list
9/16 in. to 1 in.75 and 10 to 80 and 10 per cent off list

Upset Set Screws

1/4 in. and under.....80, 10 and 5 to 85 per cent off list
9/16 in. to 1 in.80, 10 and 5 to 85 per cent off list

Milled Square and Hex. Cap Screws

All sizes, 70 and 10 per cent off list

Milled Set Screws

All sizes, 70, 10 and 5 per cent off list

Rivets

Rivets, 1c. per lb. extra for less than 200 kegs. Rivets in 100-lb. kegs, 25c. extra to buyers not under contract; small and miscellaneous lots less than two tons, 25c. extra; less than 100 lb. of a size or broken kegs, 50c. extra.

All prices carry standard extras f.o.b. Pittsburgh.

Wire Rods

No. 5 common basic or Bessemer rods to domestic consumers, \$40; chain rods, \$40; screw stock rods, \$45; rivet and bolt rods and other rods of that character, \$40; high carbon rods, \$48 to \$52, depending on carbons.

Railroad Spikes and Track Bolts

Railroad spikes, 9/16-in. and larger, \$2.25 base per 100 lb. in lots of 200 kegs of 200 lb. each or more; spikes, 1/2-in., 5/8-in. and 7/16-in., \$2.50 base; 5/16-in., \$2.50 base. Boat and barge spikes, \$2.50 base per 100 lb. in carload lots of 200 kegs or more, f.o.b. Pittsburgh. Track bolts, \$3.25 to \$3.50 base per 100 lb. Tie plates, \$2 per 100 lb. Angle bars, \$2.40 per 100 lb.

Terne Plates

Prices of terne plates are as follows: 8-lb. coating, 200 lb., \$9.30 per package; 8-lb. coating, 1 C., \$9.60; 15-lb. coating, 1 C., \$11.80; 20-lb. coating, 1 C., \$12.00; 25-lb. coating, 1 C., \$14.25; 30-lb. coating, 1 C., \$15.25; 25-lb. coating, 1 C., \$16.25; 40-lb. coating, 1 C., \$17.25 per package, all f.o.b. Pittsburgh, freight added to point of delivery.

Iron and Steel Bars

Steel bars, 1.50c. to 1.65c. from mill. Refined bar iron, 2.15c. to 2.25c.

Welded Pipe

The following discounts are to jobbers for carload lots on the Pittsburgh basing card:

Steel			Butt Weld			Iron		
Inches	Black	Galv.	Inches	Black	Galv.	Inches	Black	Galv.
1/2	54 1/2	28	1/2	3 1/2	22 1/2	1/2	3 1/2	22 1/2
3/4	57 1/2	31	3/4	36 1/2	18 1/2	3/4	36 1/2	18 1/2
1	62 1/2	48	1	42 1/2	27 1/2	1	42 1/2	27 1/2
1 1/4	66 1/2	54	1 1/4	44 1/2	29 1/2			
1 1/2	68 1/2	56						
2	61 1/2	49	Lap Weld					
2 1/2	65 1/2	53	2	39 1/2	25 1/2			
3	62 1/2	49	2 1/2	42 1/2	29 1/2			
3 1/2	61 1/2	48	3	40 1/2	27 1/2			
4	61 1/2	48						
Butt Weld, extra strong, plain ends			Lap Weld, extra strong, plain ends					
1/2	50 1/2	33	1/2	3 1/2	22 1/2			
3/4	53 1/2	35	3/4	35 1/2	23 1/2			
1	59 1/2	48	1	42 1/2	28 1/2			
1 1/4	64 1/2	53	1 1/4	44 1/2	30 1/2			
1 1/2	66 1/2	55						
2	68 1/2	56						
2 1/2	63 1/2	48	2	40 1/2	27 1/2			
3	63 1/2	52	2 1/2	43 1/2	31 1/2			
3 1/2	62 1/2	51	3	42 1/2	30 1/2			
4	58 1/2	45	4	35 1/2	23 1/2			
4 1/2	52 1/2	39	4 1/2	30 1/2	18 1/2			

To the large jobbing trade the above discounts are increased by one point, with extra discounts of 5 and 2 1/2 per cent.

Boiler Tubes

The following are the discounts for carload lots f.o.b. Pittsburgh:

Lap Welded Steel		Charcoal Iron	
1 1/4 in.	26 1/2	1 1/4 in.	5
2 to 2 1/4 in.	41	1 1/2 to 1 3/4 in.	15
2 1/2 to 3 in.	52	2 to 2 1/4 in.	25
3 1/4 to 13 in.	57	2 1/2 to 3 in.	30
		3 1/4 to 4 1/2 in.	32

Standard Commercial Seamless Boiler Tubes

New discounts have been adopted on standard commercial seamless boiler tubes, but manufacturers are not yet ready to announce them for publication, and for that reason we publish no discounts this week.

Sheets

Prices for mill shipments on sheets of standard gage in carloads, f.o.b. Pittsburgh, follow:

Blue Annealed		Box Annealed, One Pass Cold Rolled	
Cents per Lb.		Cents per Lb.	
No. 8 and heavier..2.20-2.45		No. 11 and 12.....2.50-2.55	
Nos. 9 and 10		Nos. 13 and 14.....2.35-2.60	
(base), 2.25-2.50		Nos. 15 and 16.....2.45-2.70	
Galvanized		Tin-Mill Black Plate	
Cents per Lb.		Cents per Lb.	
Nos. 10 and 11.....2.90-3.00		No. 28 (base).....2.90-3.00	
Nos. 12 to 14.....3.00-3.10		No. 29, 3.00-3.10	
Nos. 15 and 16.....3.15-3.25		No. 30, 3.10-3.20	
Nos. 17 to 21.....3.30-3.40			
Nos. 22 to 24.....3.45-3.55			
No. 27, 2.85-2.95			
Cents per Lb.		Cents per Lb.	
Nos. 15 and 16.....2.70-2.80		No. 28 (base).....2.90-3.00	
Nos. 17 to 21.....2.75-2.85		No. 29, 2.95-3.05	
Nos. 22 to 24.....2.80-2.90		No. 30, 2.95-3.05	
Nos. 25 to 27.....2.85-2.95		Nos. 30 1/2 and 31.....3.00-3.10	

NON-FERROUS METALS

The Week's Prices

Cents Per Pound for Early Delivery

	Copper, New York		Tin New York	Lead		Zinc	
	Lake	Electro- lytic		New York	St. Louis	New York	St. Louis
Nov.							
2	13.12½	12.75	27.75	4.70	4.40	5.10	4.60
3	13.12½	12.75	27.87½	4.70	4.40	5.20	4.70
4	13.12½	12.75	28.25	4.70	4.40	5.25	4.75
5	13.25	12.75	28.25	4.70	4.40	5.25	4.75
7	13.25	12.75	28.62½	4.70	4.40	5.25	4.75

New York

NEW YORK, Nov. 7.

A fair demand and a strong tone permeates most of the markets. The copper market is stronger and more active. Business in tin has fallen off considerably, but prices are steady. There is a fair demand for lead at unchanged values. Unusual conditions in the zinc market have advanced prices.

Copper.—Developments indicate that the electrolytic copper market is firmly established at a minimum of 13c., delivered, for this year's delivery, with apparently a limited amount available at that price and with several large sellers quoting no less than 13.25c. or not quoting at all. There have even been sales made at 13.35c., delivered, in the last week by one or two interests. Inquiries continue fairly large and there have lately appeared definite ones for 1922 delivery, involving considerable business. Foreign sales are satisfactory, and it is stated that a low freight rate to Hamburg has been negotiated which is considerably below the cost of delivering the same metal at some Connecticut and New York points. Sales for October are estimated to have been 140,000,000 lb., which, taking into consideration that output of refined copper is not more than 40,000,000 lb. per month, would show a rapid lessening of stocks. Deliveries into consumption for October are not yet definitely known, but the average previous to that month have been between 70,000,000 to 80,000,000 lb.

Tin.—The market has turned exceedingly quiet and very few sales are reported. With the exception of a little business for January-February shipment from the Far East on Nov. 3 the market has been almost stagnant. There is less demand for spot delivery and what interest there is centers in far off shipments, with intermediate positions negligible. Spot Straits tin to-day was quoted at 28.62½c., New York. The London market to-day was considerably higher than last Tuesday at £158 10s. for spot standard, £160 for future standard and £159 for spot Straits. Arrivals thus far this month have been negligible with 4950 tons reported afloat. The firmness in the exchange value of the pound sterling has had a steadying influence on the price of spot Straits tin all the week.

Lead.—The market continues quiet, with a moderate amount of business reported and the price unchanged at 4.70c., New York, or 4.40c., St. Louis, in the outside market. The quotation of the leading interest continues unchanged at 4.70c., both New York and St. Louis.

Zinc.—The market for prime Western has experienced a sharp advance in price until to-day it is quoted at the minimum of 4.75c., St. Louis, or 5.25c., New York, for early delivery, which is about ¼c. higher than a week ago. This advance is generally ascribed not to increased buying by consumers, but to fairly heavy purchases by one or two interests who have evidently been accumulating the metal for the filling of contract or for holding for future sales. Producers generally are pretty well sold up as to early output and are not eager sellers for early delivery.

Antimony.—Wholesale lots for early delivery are quoted at 4.75c., New York, duty paid, with the market inactive.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted at 24.50c., f.o.b. plant, by the leading producer, but the same grade is available from import at 17c. to 18c., New York, duty paid.

St. Louis

ST. LOUIS, Nov. 8.—The lead market is weak and lower, while zinc is strong and higher. We quote lead at 4.40c., carlots, and slab zinc at 4.75c., at which 300 tons were sold on Thursday. We quote Lake Copper at 13.73½c., car lots; tin, 29.11c., and antimony, 5.48½c. In old metals, we quote: Light brass, 3.50c.; heavy red brass, 7c.; light copper, 7c.; heavy yellow brass, 4c.; heavy copper and copper wire, 7.50c.; zinc, 2c.; pewter, 15c.; tinfoil, 16c.; tea lead, 2c.; aluminum, 9c.

JAPANESE BUYING DECREASES

Japanese Buyers Demand Lower Prices—South America Inquires—Chinese Buy High Grade Scrap

NEW YORK, Nov. 7.—Trade with Japan has shown a slight decrease during the past fortnight. It has been partially offset by the renewed activity in South American markets and some buying from Mexico. Wire and wire products are included in the inquiries appearing both from Japan and South America, but in the latter case it is proving difficult to transact business, as the usual long credits are generally asked and as most exporters have lost rather heavily in these markets by cancellations, they are not inclined to deal on anything but irrevocable letters of credit. The Japanese, on the other hand, are demanding lower prices than are now prevailing in the American domestic market. In the case of black sheets of Nos. 24, 26 and 28 gage, they claim that they have obtained them as low as \$54 per ton, c.i.f. Japanese port, but fail to state whether or not they were of American or Continental origin. On practically all products, American mills show but little interest in making quotations for export, at present, as they claim that the prices demanded by the foreign buyers are too low to be considered and the loss suffered would be even greater than on domestic transactions.

China is showing some activity in small machine tools and machinery and recently purchased 100 tons of electrolytic copper through a New York export company to be used in the mint in Hongkong. The Pacific Development Corporation has shipped 100 carloads of scrap plates from steel gondola cars to Shanghai. These are used by Chinese blacksmiths in making small tools and utensils. There is a light demand for plates of this kind, and high-grade scrap angles, tees, beams and channels for this purpose. Some requests for quotations on plate cuttings are reported as well as a few sales. These, also, are used in China and Japan for the manufacture of small hand tools.

An inquiry is in the market from England for 500 tons of ¾-in. to 4-in. steel pipe, British thread, which, it is said, will be placed with an American company, provided the price is sufficiently low. It is not stated whether this tonnage is for British consumption or for re-export. The Indian Engineering Co. in India recently inquired for 100 tons of beams. The transaction was handled by the New York office of a British exporter, but before shipment was made the order was cancelled because of the exchange rate.

A few orders are appearing from Mexican buyers. A warehouse in New York has booked a good-sized order for open-hearth spring steel for a buyer in the Philippines. H. J. Nicol, Guatemala, C. A., importer and exporter, wishes to obtain an agency for a line of hardware, either representing the manufacturer directly or working through an exporter.

PERSONAL

G. Herbert Jones, first vice-president and general sales manager Inland Steel Co., Chicago, has tendered his resignation, to become effective about the first of the year. Mr. Jones has been identified with the iron and steel business for 50 years, the last 28 of which were with the Inland Company. He, alone among the present executives, participated in the organization of the company in 1893, and the remarkable development of its properties since that time has been due, in no small measure, to his efforts. As head of the sales department, he pursued an energetic policy which extended the market for Inland products apace with the steady expansion in plant capacity. Throughout the West he is an outstanding figure in the iron and steel world and the friendships he has formed extend from ocean to ocean. Since the inception of the Inland Steel Co., Mr. Jones has been unremitting in his efforts to promote its fortune and it is reluctantly and only because he feels that he must have time for rest and recreation, that he has asked to be relieved of his duties. During his years of service, the growth of the Inland company has been rapid. When, with his associates, he bought the barely completed plant structure of the defunct Chicago Steel Works at Chicago Heights, Ill., the initial rolling equipment consisted of 11 carloads of badly battered machinery. Throughout the first year or two, times were hard and the outlook was not bright for the infant industry. The storm was weathered, however, and subsequent expansion of the company came quickly. In 1897 Mr. Jones helped organize the Inland Iron & Forge Co., East Chicago, Ind., later bought by the Republic Iron & Steel Co., and in 1899 participated in the formation of the Buffalo Steel Co. In 1902 the first unit of the present steel plant at Indiana Harbor was completed, the initial steel-making capacity consisting of four open hearth furnaces. On Aug. 30, 1907, the first blast furnace was blown in, and in 1919 the last large works addition, known as the No. 2 plant, was completed. Today the facilities of company include three blast furnaces, 22 open hearth furnaces and numerous mills. The company has won a place among the foremost producers of iron and steel in the United States and is indisputably the largest independent in the West. Although the major portion of Mr. Jones' career has been spent with the great institution which he helped organize, his prior experience in the iron and steel business covered 22 years. During that entire time he was associated in various capacities with Hall, Kimbark & Co., wholesale iron and steel, Chicago, holding the position of general manager of sales when he left that organization. He was born in England on Jan. 25, 1856, and came to the country of his adoption in 1871. In retiring from the vice-presidency of the Inland Steel Co., Mr. Jones does not propose to sever connections with the business world entirely. He will probably continue to serve as director and member of the executive committee. He will also devote his attention to the Hillside Fluor Spar Mine, a property which he has been developing at Rosiclare, Ill. The mine will be fully equipped by the first of the year and Mr. Jones believes that a broad market for its products can be created by systematic sales effort. Mr. Jones looks upon this property in the light of a hobby to employ his time in the evening of his life, and he has already derived much pleasure from investigating the possibilities for its product not only in the metallurgical field but in other directions. Its



G. HERBERT JONES

applications in the field of wood preservation, for example, is indicated by the recent announcement of the U. S. Wood Products Laboratory, Madison, Wis., to the effect that sodium fluoride, a derivative of fluor spar, is a better preservative for wood than creosote. Its use for this purpose, however, has been restricted because the supply up to this time has been limited.

H. R. Viot has resigned as purchasing agent of the Continental Motors Corporation, Detroit. He was formerly with the Oakland Motor Car Co., Pontiac, Mich.

Herbert L. Hochsched has resigned as treasurer of the Krasberg Piston Ring Co., Chicago.

Albert E. Newton has resigned from the presidency of the National Metal Trades Association, his business affairs demanding all of his time. He was formerly president of the National Machine Tool Builders' Association but resigned from membership in that organization when he sold his interest in the Reed-Prentice Co., Worcester, Mass. Mr. Newton is now identified with the Collins Co., Collinsville, Conn.

W. J. Drumpelmann, assistant sales manager Hudson Motor Car Co., Detroit, has resigned to become assistant sales manager of the newly organized Rickenbacker Motor Co. Mr. Drumpelmann has been with the Hudson company since 1917.

Charles R. Wise, Rockford, Ill., on Oct. 20, observed the fifty-first anniversary of his employment with the Rockford Bolt Works. He started as a roustabout in the shipping room and today is practically sole owner of the plant.

The Warner & Swasey Co., Cleveland, has made a change in its original plans for filling the vacancy created by the resignation of H. E. Witham, district sales manager at Chicago. Gerald Kochenderfer, representative at Indianapolis, has been appointed to succeed Mr. Witham, and C. E. Neubert, district manager of the Buffalo office, who according to the first announcement was to be transferred to Chicago, will remain in his present location.

D. M. Petty, electrical superintendent at the Lehigh plant of the Bethlehem Steel Co., Bethlehem, Pa., will address the Philadelphia section of the Association of Iron and Steel Electrical Engineers on Dec. 20 on "Yard Electrification of Industrial Plant Railways."

E. G. Lewis will be in charge of the new office of the Bucyrus Co., South Milwaukee, Wis., at suite 728, 30 Church Street, New York, as Eastern sales manager, effective Dec. 1. For many years he was with the sales organization of the Bucyrus Co., both in Chicago and in New York, and has also had wide experience in railroad and general contracting work, both in this country and abroad. M. J. Woodhull, who has had much experience in the manufacture and sale of railroad construction equipment with the Bucyrus Co. and elsewhere, is appointed Central sales manager, to succeed Mr. Lewis, in charge of the Chicago office, 622 McCormick Building. E. R. Weber is appointed Northern sales manager, at Minneapolis, 1224 McKnight Building, to succeed J. N. Gawthrop, who will become associated with Mr. Lewis in New York. Mr. Weber has been with the engineering, manufacturing and sales departments of the Bucyrus Co. for the last 15 years.

Earl B. Frost, secretary and general manager, National Machinery Co., Tiffin, Ohio, has been elected president of the Tiffin Chamber of Commerce.

Harry C. Williamson, who has been in charge of the Indianapolis sales office of the Betz-Pierce Co., Cleveland, jobber in iron and steel, has been transferred to Cleveland where he will look after city sales of the company, succeeding C. E. Sinclair, who recently resigned.

C. I. Drake, assistant to president, Walworth Mfg. Co., Boston, spoke on foundry costs before the members of the New England Foundrymen's Association at its meeting on Nov. 9 at the Exchange Club, Boston.

Harry Ross Jones and Edward L. Hang, president and vice-president-secretary, respectively, United Alloy

Steel Corporation, Canton, Ohio, have resigned, effective Dec. 31. Both will continue to serve on the board of directors and Mr. Jones will serve on the executive committee until the next annual meeting in April, 1922. Mr. Jones will look after his personal interests and Mr. Hang will soon start on a trip to the Southwest for his health, returning to Canton late next spring. The retiring officers have been with the company for 18 years. Mr. Jones went to Canton from Cleveland in January, 1904, at which time the United Steel Co., as it was then called, was in financial straits, with capital exhausted and plant not completed. Then its capacity was 3000 tons of steel ingots per month; its capacity to-day is 65,000 tons a month. Mr. Jones has been active in the development of vanadium and molybdenum steels.

The Hampden Corundum Wheel Co., Chester, Mass., property has been transferred to the Courtland Grinding Wheel Corporation, that village. The consideration is approximately \$115,000.

V. E. Hillman, chief chemist and metallurgist Crompton & Knowles Loom Works, Worcester, Mass., last week addressed engineering students of the Massachusetts Institute of Technology on "Applied Research and Its Relation to Industry."

Clyde E. Dickey, Woolworth Building, New York, has been appointed sales representative for the Metropolitan district of New York for the Peerless Drawn Steel Co., manufacturer of cold drawn screw stock, shafting and alloy steels.

Millard Jiles, formerly associated with the Peck, Stowe & Wilcox Co., Middletown, Conn., has been appointed superintendent of the Springfield, Mass., branch of Charles Miller & Sons Co., manufacturer of plumbers' supplies.

J. V. W. Reynders, 120 Broadway, New York, has been elected chairman of the iron and steel committee of the American Institute of Mining & Metallurgical Engineers, succeeding the late Prof. Joseph W. Richards, Lehigh University.

E. W. Smith has been appointed assistant manager of the Chicago office of the Pittsburgh Steel Co., Pittsburgh, succeeding H. C. Woodside, who recently resigned. Mr. Smith has been with the sales department of this company for about 15 years. Mr. Woodside is now sales manager of the Northwestern Barb Wire Co.

H. W. Southard, formerly in charge of European sales and purchasing for Viele, Blackwell & Buck, 49 Wall Street, New York, recently resigned to accept a position in the Far Eastern department of the Foreign Traders Co., 154 Nassau Street, New York. Mr. Southard was succeeded by T. W. Havenstein, for five years in the engineering department of Viele, Blackwell & Buck. J. E. Goode, formerly purchasing agent American Steel Export Co., 233 Broadway, New York, has been appointed Far Eastern sales manager, and C. C. Marrin, purchasing agent.

Henry P. Bope, formerly first vice-president and general manager of sales, Carnegie Steel Co., has been elected president of the International Steel Tube Co., Cleveland, and will move to that city and devote his time to the affairs of that company, which plans to place its plant in operation early next year.

The C. C. Carter Machinery Co., Providence, R. I., has opened quarters at 36 Garnet Street, to deal in new and used machine tools, transmission and supplies. C. C. Carter is manager and Earl A. Adams, treasurer of the company. For the past eight years Mr. Carter was associated with the E. A. Eddy Machinery Co., Providence, and previous to that with Thomas & Lowe.

The Pittsburgh Machinery Co., 301 Jones Building, Pittsburgh, has been taken over by the Bradley Co., which will occupy the same offices and continue the business of new and used railroad, industrial, mining and contractors equipment.

OBITUARY

JAMES B. RIDER, vice-president and general manager Pressed Steel Car Co., and the Western Steel Car & Foundry Co., died Nov. 3, at his residence, Northumberland Avenue, Pittsburgh, after an illness of four months. On July 2, the day he was to sail for Cuba to attend to business matters in connection with the American Steel Co. of Cuba, a subsidiary of the Western Steel Car & Foundry Co., Mr. Rider was stricken with tumor on the brain in New York and removed to a hospital. He never fully recovered from the operation which followed. He was born in Morrisons Cove, Pa., Sept. 10, 1879, and entered the service of the Pennsylvania railroad as a messenger boy. He worked through the several stages of shop order clerk, invoice clerk and stenographer, leaving the railroad in 1899 to join the Pressed Steel Car Co. as stenographer and clerk to the general manager. In 1905 he was advanced to assistant to the vice-president and four years later was appointed general manager, just 10 years after his coming to the company and when only 30 years old. In 1913 he was made a member of the board of directors and the same year appointed general manager of the Western Steel Car & Foundry Co. Mr. Rider was a member of several clubs in Pittsburgh and other cities. He was a director of the Chamber of Commerce of Pittsburgh.

DAN R. HANNA, for many years identified with the iron ore, pig iron and lake shipping industry in Cleveland as a member of the firm of M. A. Hanna & Co., died suddenly of heart failure at his home in Ossining, N. Y., Nov. 3, aged 54 years. He was a member of the Hanna firm founded by his father, the late Senator M. A. Hanna, from Jan. 1, 1891, to June 15, 1915. Since severing his connection with M. A. Hanna & Co., Mr. Hanna had devoted his attention to various personal business interests. The erection of the Hanna Building in Cleveland, as a monument to his father, was his last most important activity.

JARROTT P. DUGGER, Homewood, Ill., secretary Kewanee Boiler Co. for 28 years, died after a long illness, at Indianapolis on Oct. 29.

HENRY S. REGESTER, SR., Baltimore, secretary of J. Regester Sons Co., manufacturer of church bells and other brass products, died of paralysis on Oct. 31, aged 69 years. The firm with which Mr. Regester was associated was dissolved about 15 years ago.

JOHN H. CARR, founder and president Union Metal Works, Chelsea, Mass., died suddenly at his home in Everett, Nov. 3, as a result of cerebral hemorrhage, aged 58 years. Mr. Carr was a director of the Everett National Bank, a member of the Massachusetts and the Federal Chamber of Commerce and the Everett Board of Trade.

HARRY WEBSTER WAITE, Waite, Ranlet & Co., Boston, metals, died at his home in Brookline, Nov. 3, age 67 years, as a result of a shock suffered about a week previous. He was born in California, but spent practically all his life in New England, where he was well known in the metals trade.

Water power in electric power plants conserves each month, in the United States, some 1,650,000 tons of coal, or its equivalent in fuel oil, according to figures issued by the Geological Survey. For the five months, May to September inclusive, the average electric production by water power was 1,216,000,000 kwhr.; by fuels, 2,084,000,000 kwhr. The coal burned averaged 2,464,000 (net) tons per month; the fuel oil, 1,026,000 bbl., equivalent to about 300,000 tons of coal.

The Blakeslee Drop Forge Co., Southington, Conn., closed two months, has resumed operations with a five and one-half day schedule of nine hours per day. Practically all employees returned to work.

Machinery Markets and News of the Works

RAILROADS ACTIVE

Half a Dozen Lines Are Openly Considering Tool Purchases

Continued Gradual Improvement Experienced—Buyers Show More Interest

Railroad business, both pending and prospective, is in the foreground. The mechanical department of the Erie Railroad has asked prices on 64 machines, the list appearing on this page, signifying its desire to purchase used machines in good condition where possible. The Santa Fe has asked for revised quotations on its pending list and is expected to order a few machines this week. A railroad purchasing agent in Chicago has a large list on his desk against which he will purchase when he is convinced prices are most satisfactory. The Rutland Railroad, Rutland, Vt., inquires for nine tools for estimating for its 1922 budget. The Union Railroad, Pittsburgh, property of the United States Steel Corporation, has purchased three tools. The Big Four has bought practically all the equipment asked for its Beech Grove shops.

New York

NEW YORK, Nov. 7.

The mechanical department of the Erie Railroad, 50 Church Street, New York, has asked for prices on 64 miscellaneous machines for its various shops. The inquiry states that the railroad is anxious, where possible, to purchase used tools in good condition. The list follows:

- Three 90-in. driving wheel lathes.
- Four 500-ton car wheel presses.
- Two 48-in. car wheel boring mills.
- Six 23-in. shapers.
- Two 6-ft. radial drills.
- One 48-in. x 12-ft. engine lathe.
- One 28-in. slotter.
- One 42-in. boring mill.
- Two 24-in. boring mills.
- One double-head staybolt cutter.
- Two 3 x 36 in. turret lathes.
- One cutter grinder.
- One universal milling machine.
- Four 18-in. engine lathes.
- One 1100-lb. steam hammer.
- One link planing attachment.
- One emery wheel stand.
- Three power hack saws.
- One 4-in. pipe threader and cutter.
- One horizontal boring mill, 4 in. bar.
- Three 60-ton presses.
- Three 20-in. emery wheel stands.
- One 100-in. tire turning mill.
- One 42-in. truck tire lathe, motor drive.
- One 4-in. pipe cutter and threader.
- One 36-in. x 20-ft. lathe.
- One 600-ton driving wheel press.
- One Franklin portable crane.
- Two electric trucks.
- One 42-in. vertical boring mill.
- One 36-in. drill press.
- Two 15 hp. motors.
- One 4-in. pipe threading machine.
- One 5-ft. radial drill.
- One 14-in. sensitive drill.
- One 54-in. boring mill.
- One internal grinder.
- One double-end axle lathe.

No purchases have been made as yet by the Delaware, Lackawanna & Western Railroad against its recent inquiry

Hopeful signs in the market are: The revival of old inquiries which have lain dormant for some time; the increasing interest of prospective purchasers who have heretofore given a cold reception to sales talk; the gradual, but certain, increase in the buying of single machines; the improvement in export business.

The West Penn Power Co., in the Pittsburgh district, has revived a list of 20 tools which was originally issued in February. A prominent exporting company in New York is making sales abroad at the rate of six times the value of those made early this year.

The Durant Motors Corporation has given a \$12,000,000 order for engines and parts to the Continental Motors Corporation, Detroit and Muskegon, Mich., said to be the largest order in automotive history. It is likely that new equipment will be purchased in connection with this order.

Recent price reductions include: 10 per cent on small production lathes; 15 per cent by a Michigan maker of radial drills; 10 per cent on a line of air chucks; 20 per cent reduction on drill, tap, universal cutter and tool grinders by a Michigan maker; 10 per cent by an Indiana manufacturer of emery and polishing stands.

for about 40 machines. The New York Central Railroad list, now in preparation, will probably be issued before the first of the year.

Bids were opened last week by the New York Board of Education on its list of machine tools, numbering upwards of 100, and other small tools and supplies for vocational training schools. Awards probably will not be made for some weeks owing to the great labor involved in tabulating the bids.

Export business in machine tools is not showing material gains, but J. W. Hook, president Allied Machinery Co., 51 Chambers Street, New York, which represents many of the leading American machine-tool builders in foreign trade, believes that the company has definitely turned the corner and that a steady, though probably slow, gain in export business can be hoped for. While the volume of business being booked is not large, the volume that is being quoted upon shows a marked gain, now averaging about \$750,000 a week compared with an average of \$125,000 a week early in the year. The company's inventories have been reduced, the total now standing at \$4,750,000, including goods already sold and enroute but not yet delivered. The reduction in the inventory since the first of the year is about \$3,000,000.

The Lamp Salvage Corporation of America, 501 West 145th Street, New York, which was recently incorporated, will engage in the refilling of incandescent lamps. The company expects to enlarge its production soon and contemplates leasing a new building. Special machinery for making lamps is now being negotiated for.

While the number of inquiries in the crane market shows no increase, those now being handled in this district are generally quite active. The inquiry of the American Car & Foundry Co., for two 5-ton electric cranes for its St. Louis plant, has been confined to the six lowest bidders on the previous purchase of two cranes. The Textile Finishing Machine Co., Providence, R. I., is receiving bids on seven small capacity cranes, four electric and three hand power. The Forbes Aluminum Products Corporation, which will build a plant at Easton, Pa., has placed its purchasing in the hands of the Fawcus Machine Co., 2828 Smallman Street, Pittsburgh. It will include a 15-ton electric crane. The Pacific Mills, Lawrence, Mass., recently purchased a 30-ton electric crane from an unnamed builder.

Among recent sales are: Cleveland Crane & Engineering Co., a 2-ton 30-ft. span, overhead traveling crane to the E. W. Bliss Co., Brooklyn, N. Y., for its Cleveland plant; Industrial Works, two 20-ton, 50-ft. boom locomotive cranes

to the Duquesne Slag Products Co., Pittsburgh; Northwest Engineering Co., two 10-ton dragline, crawler cranes to L. H. Barkhausen, Portage, Wis., and one 10-ton dragline crawler crane to S. O. Briggs & Son, Omaha, Neb.; Northern Engineering Works, Detroit, a 5-ton 3-motor electric traveling crane for the Pittsburgh Metallurgical Co., Niagara Falls, N. Y.

The Brooklyn Edison Co., 360 Pearl Street, Brooklyn, has plans for a power plant, 80 x 130 ft., on Sixty-sixth Street, to cost \$120,000. G. L. Knight, company address, is engineer.

The Taylor-Wharton Iron & Steel Co., 30 Church Street, New York, alloy steel and iron castings, rolling mill machinery, etc., with plant at High Bridge, N. J., has disposed of a bond issue of \$3,250,000. Knox Taylor is president.

The Inwood Consumers' Ice Mfg. Corporation, 30 Church Street, New York, will at once erect an ice-manufacturing plant at Ninth Avenue and 213th Street, to cost \$300,000, including machinery. The company was recently organized with \$200,000. R. L. Belgardo is president.

The Electric Bond & Share Co., 71 Broadway, New York, is arranging for an increase in capital from \$20,000,000 to \$25,000,000, providing for extensions in plants and system. The Pennsylvania Power & Light Co., a subsidiary, is expanding at Allentown, Wilkes-Barre and elsewhere in eastern Pennsylvania. It recently acquired the Wilkes-Barre Electric Light Co.

The Faurot Scope Mfg. Corporation, Long Island City, N. Y., precision apparatus, has leased the two-story building on Prospect Street, at the Bridge Plaza, Long Island City, for the establishment of a new plant.

The New York Dock Co., 41 Whitehall Street, New York, has completed plans for a one-story power house at Furman and Montague streets, Brooklyn.

The Groton Electrical Devices Co., Groton, N. Y., has changed its name to the Alrdry Corporation.

Valentine Petersen, 764 Fourth Avenue, Brooklyn, has plans for a one-story machine shop addition. John C. Wandell, 8525 Fourth Avenue, is architect.

The West Forty-ninth Street Garage Corporation, New York, will expend \$250,000 for a two-story automobile service and machine repair building, 117 x 175 ft., on West Forty-ninth Street, near Eleventh Avenue. Maynicke & Franke, 25 East Twenty-sixth Street, are architects. Max Rothbart is president.

The Fulton Foundry & Machine Co., Brooklyn, now operating at 21 Furum Street, has incorporated at \$100,000 to manufacture machinery, castings, etc. The company is headed by Albert W. Mesick, G. W. Van Eps and F. W. Baldwin.

The International Nickel Co., 67 Wall Street, New York, has awarded a contract to the United Engineering & Foundry Co., Farmers' Bank Building, Pittsburgh, for machinery and equipment for its new plant at Huntington, W. Va., for the manufacture of Monel metal, etc.

The Sheffield Farms Co., Inc., 524 West Fifty-seventh Street, New York, has plans for a three-story ice and refrigerating plant on Webster Avenue, to cost \$125,000. Frank A. Rooke, 15 East Fortieth Street, is architect.

A bond issue of \$3,000,000 has been sold by the Manitoba Power Co., Ltd., Winnipeg, Man., to New York banking interests, for a 165,000 hp. hydroelectric generating plant at Great Falls, Winnipeg River. Construction will be handled by Fraser Brace & Co., 32 Pearl Street, New York. A. W. McLimont is vice-president of the Manitoba company.

The Master Trucks, Inc., 237 West Sixty-first Street, New York, motor trucks and parts, has leased part of the building on Fourteenth Street, near Ely Avenue, Long Island City, owned and occupied by the George W. Copp Co., automobile equipment.

The Kings County Lighting Co., 4802 New Utrecht Avenue, Brooklyn, has plans for a one-story building at First Avenue and Fifty-fifth Street, for general mechanical service.

The Alaska Anthracite Railroad Co., care of the National Park Bank of New York, 214 Broadway, New York, trustee, has disposed of a bond issue of \$1,500,000 to local banking interests, for new rolling stock, water terminals and bunkers, extension and branches to develop coal properties, shop equipment, etc. The company operates a line from Controller Bay, Alaska, to the Bering River coal fields.

A one-story automobile service and repair works, to cost \$100,000, for company motor trucks, will be erected by the H. C. Bohack Co., 1291 Broadway, Brooklyn, grocers, on Metropolitan Avenue, Ridgewood, L. I. Arthur Koch, 32 Court Street, Brooklyn, is architect.

The Commissioner of Immigration, Robert E. Tod, Ellis Island, N. Y., will receive bids until 2.30 p. m., Nov. 15,

for extensions to the coal hoist and fender system at Ellis Island.

The Richmond Ice Co., Rosebank, S. I., will build a one-story ice plant, 75 x 100 ft., on Clove Road, near Richmond Turnpike, West New Brighton, S. I.

The Penn Motor Corporation, 1714 North Broad Street, Philadelphia, Hilton W. Scofield, head, will soon take bids for a one-story automobile manufacturing plant at Pleasantville, N. J., 50 x 330 ft. Charles H. Donehower, Pleasantville, is architect and engineer.

The Maywald Rubber Co., 86 Park Place, Newark, specialties, with plant at Nutley, N. J., is arranging a stock issue, for plant expansion. Manufacture of inner tubes for automobile tires will be engaged in. Dr. Frederick J. Maywald is president, and George C. Plummer, vice-president and treasurer.

Fire, Oct. 31, destroyed the ice plant of Brady Brothers, Lake Hopatcong, N. J., including power house, equipment, etc., with loss of \$150,000.

The Public Service Corporation, Public Service Terminal, Newark, operating electric light and power plants, gas works and traction system, has arranged for a stock issue of \$2,000,000 for general operations, extensions, improvements, etc.

Pfaff & Kendall, 655 Ferry Street, Newark, iron pipe and kindred products, have plans for a two-story plant on Foundry Street, 38 x 110 ft., to cost \$20,000. William L. Finne, 712 First Avenue, Elizabeth, N. J., is architect.

Fire, Nov. 3, destroyed three piers of the Erie Railroad Co., Jersey City, N. J., on the Weehawken, N. J., waterfront, with loss of \$2,000,000, including equipment and stock. The loss also included property of the Standard Oil Co. of New Jersey and the International Milling Co.

Hedges & Brother, Inc., 10 Railroad Place, Newark, N. J., valves, pipe, plumbing supplies, etc., has acquired property on South Street, 60 x 100 ft., as a site for the erection of a new plant.

Philadelphia

PHILADELPHIA, NOV. 7.

Following the termination of receivership, the Ace Motor Corporation, Philadelphia, has resumed title to its plant at Erie Avenue and Sepviva Street, and will proceed with regular production. The works occupy about 7 acres of land, with a number of buildings. The company was recently reorganized under Delaware laws with a capital of \$2,340,000. M. M. Sladkin heads the company.

The Bureau of Water, Philadelphia, has awarded contract to the Niles-Bement-Pond Co., Meadow and Mifflin streets, for the installation of an electric traveling crane at the Shawmont pumping plant. Contract has also been let to the O'Brien Machinery Co., 119 North Third Street, for equipment for the new machine and repair shop.

Fire, Oct. 30, destroyed a portion of the annex plant of the works of the Keystone Lantern Co., State Road and Cottman Street, Philadelphia, with loss estimated at about \$25,000.

The H. S. & W. B. Cochrane Corporation, Seventeenth Street, Philadelphia, manufacturer of power plant equipment, has filed plans for a one-story addition.

The Insulated Wire & Cable Co., Olden and Taylor streets, Trenton, N. J., has completed plans for a one-story addition, 50 x 120 ft.

Machinery and electrical equipment will be installed in the new one and two-story addition to be erected to the Acme Sanitary Pottery Co., May Street, Trenton, N. J., manufacturer of sanitary ware, estimated to cost about \$80,000.

The Harbor Engineer, Room 11, City Hall, Camden, N. J., is taking bids for a 3-ton electric traveling crane, locomotive type; electric tractor with 3 trailer trucks, and two portable electric winches for installation at the city harbor, Spruce Street pier. George W. Bradley, chairman of the Harbor Committee.

The Floyd-Wells Co., Royersford, Pa., manufacturer of stoves, ranges, heaters, etc., will take bids at once on revised plans for a two-story addition, 32 x 120 ft. A. B. Kepner, 121 Hanover Street, Pottstown, Pa., is architect.

Fire, Oct. 30, destroyed the plant of the Eclipse Wood Pulley Co., Berlin, Pa., with loss estimated at about \$50,000.

The duPont Motors Co., Wilmington, Del., will erect a new one-story building, 75 x 100 ft., at its plant on Thirteenth Avenue, Prospect Park, Pa.

The Department of Public Grounds & Buildings, Capitol Building, Harrisburg, Pa., will soon take bids for a new one-story automobile service and repair building, 60 x 112 ft., at Eighteenth and Herr streets, for state motor cars and automobiles. Samuel B. Rambo is secretary; Frank A. Fahnestock, Patriot Building, is architect.

The American Natural Gas Co., Indiana, Pa., has completed plans for a new one-story building, 30 x 100 ft., for mechanical and machine shop service, and other operations. Xavier Wittmer is president.

The Vulcaweld Rubber Co., Pottstown, Pa., is completing plans for rebuilding its tire manufacturing plant, destroyed by fire several months ago.

John H. Bradley & Co., manufacturers of hospital and institution equipment, have leased a factory building at 705 North Twelfth Street, Philadelphia, and have installed machinery. They are still in the market for a power brake, a power squaring shear and polishing machines. After Nov. 7 the name of the company will be the J. H. Bradley Mfg. Co.

Buffalo

Power equipment, ovens, conveying machinery and other equipment will be installed in the new five-story plant, 200 x 360 ft., to be erected at Ferguson Street and the Belt Line Railroad, the site of the former Buffalo Pitts foundry, Buffalo, by the National Biscuit Co., 217 Ellicott Street, to cost \$1,000,000. New York offices of the company are Tenth Avenue and Fifteenth Street.

S. Cheney & Sons, Seneca Street, Manlius, N. Y., iron castings, etc., have completed plans for a one-story machine shop. Melvin L. King, Snow Building, Syracuse, N. Y., is architect.

The Pennsylvania Glass Sand Co., Lewiston, Pa., is completing plans for the superstructure of its one-story feldspar grinding mill at Rochester, N. Y., 50 x 130 ft., and will soon award contract. Contract for the foundation work has been let. The plant will cost \$50,000, including equipment.

The New York State Gas & Electric Corporation, 123 South Cuyhoga Street, Ithaca, N. Y., will make extensions, to cost \$25,000.

The plant of the Joseph T. Andrews Paper Co., Penn Yan, N. Y., including machinery, was damaged by fire Oct. 31, with a loss of \$30,000.

T. Kennard Thomson and Peter A. Porter have applied with the New York State Water Power Commission for a preliminary permit to develop a power site below Niagara Falls. A hearing will be held Nov. 16.

Chicago

CHICAGO, Nov. 7.

The Santa Fe has asked for revised quotations on its pending list and is expected to place orders for a few machines this week. Other roads with headquarters in this city have taken no further steps toward placing orders. A purchasing agent of one line has a large list on his desk, which he is authorized to purchase, provided he thinks prices are right. It is evident that the indecision which has characterized the policy of railroad purchasing departments throughout the year, is still delaying action on machine tool requirements. It is to be noted, however, that railroad buying is expanding in some directions, notably in the placing of orders for cars and car repairs. Shops are now generally busy on the repair of equipment and it is felt that the purchase of machine tools for replacement purposes only cannot be longer delayed, except at the expense of shop costs.

Local machinery houses report current trade on a slightly improved scale, with orders for single machines still ruling. Sentiment is generally more cheerful, not because of any material increase in business in prospect, but rather on account of a growing conviction that basic conditions are improving. It is noted that pig iron production, long regarded as the barometer of trade, showed a sharp turn for the better in October.

No further important price changes have been reported, although a few open line reductions have been made. The Grand Rapids Grinding Machine Co., Grand Rapids, Mich., has announced a 20 per cent reduction on drill grinders, tap grinders, and universal cutter and tool grinders. The Clizbe Brothers Mfg. Co., Plymouth, Ind., has reduced emery stands and polishing stands 10 per cent.

The U. S. Ball Bearing Mfg. Co., 4535 Palmer Street, Chicago, has let contract for a one-story forge shop, 100 x 122 ft., to cost \$26,000.

C. Kollet, 1545 George Street, Chicago, has let contract for a one-story garage and repair shop, 40 x 80 ft., at 2955-57 N. Ashland Avenue, to cost \$10,500.

A. Bromstedt, 6440 Stony Island Avenue, Chicago, has let contracts for a one-story garage, 50 x 200 ft., 6022-24 Stony Island Avenue, to cost \$40,000.

The Dearborn Truck Co., Maplewood Avenue and Thirty-fifth Street, Chicago, has sold its property, including a three-story plant, 110 x 113 ft., to Candy & Co., manufacturers of insulating materials. The Dearborn company is now negotiating for a building more suitable for its manufacturing requirements.

The G-A Ball Bearing Mfg. Co., 3051 West Lake Street, Chicago, has purchased property, 124 x 325 ft., on Harrison Street, 50 ft. west of Spaulding Avenue, as the site for a one-story factory and office building to contain 22,000 sq. ft. Plans have been completed by Dwight G. Wallace, architect, and construction will commence at once.

F. C. Austin, formerly of the Austin Mfg. Co., Chicago, has had plans prepared by Fox & Fox, 38 South Dearborn Street, for a four-story factory on Sangamon Street, to cost \$90,000.

Mandel Brothers, Madison and State streets, Chicago, have let contracts for a one-story garage, 125 x 193 ft., southeast corner North Crawford and Schubert avenues, to cost \$75,000.

Halperin & Braun, 19 South La Salle Street, Chicago, have let contracts for a one-story garage, 75 x 125 ft., on Loomis Street, for J. Dooley, to cost \$25,000.

The Associated Silver Co., 4448-56 West Ravenswood Avenue, Chicago, has let contract for a one-story addition to its silver plate factory, 75 x 75 ft., to cost \$18,000.

The Fleischmann Yeast Co. has let contract for a one-story brick boiler house, 30 x 50 ft., at 1578 Kingsbury Street, Chicago, to cost \$15,000.

The Chicago Board of Education has let contract for a one-story garage, 47 x 100 ft., at 700 South Clark Street, to cost \$24,000.

The Mathiessen & Haegeler Zinc Co., La Salle, Ill., has purchased the machinery and patent rights of W. C. Paisely, Ottawa, Ill., manufacturer of the "Smeeton" metal shingles.

The Cole Storage Battery Co., 2437 Indiana Avenue, Chicago, has tentative plans under way for a new two-story and basement addition, 80 x 120 ft., on Indiana Avenue, estimated to cost about \$60,000. Halperin & Braun, 19 South La Salle Street, are architects. It is expected to build early in the spring.

The Crane Co., 836 South Michigan Avenue, Chicago, manufacturer of valves, pipes, steam fittings, etc., has awarded contract to the Priester Construction Co., Putnam Building, Davenport, Iowa, for a new three-story branch plant on West Second Street, Davenport, estimated to cost about \$85,000. Local offices of the company are at 624 East Fourth Street; William T. Cotter is district manager.

The Common Council, Randolph, Neb., is planning for the construction of an addition to the municipal electric power plant to cost about \$65,000. Bonds have been provided.

The J. S. Heath Co., Franklin and Ontario streets, Chicago, manufacturer of iron, brass and other metal products, is planning for the early occupancy of its new plant, now nearing completion at Waukegon, Ill. It will be equipped as a foundry, machine shop and for metal-plating work.

The Chicago & Northwestern Railroad Co., 226 West Jackson Boulevard, Chicago, has preliminary plans under way for extensions and improvements in its car and locomotive shops and yards at Winona, Minn., estimated to cost about \$500,000. Work will commence early in the spring.

Cleveland

CLEVELAND, Nov. 7.

An encouraging feature of the machinery market is that some buyers who for a long time have declined to give any thought to the subject of buying machinery are beginning to show some interest, and this has made the tone of the market decidedly better. Sales show a slight improvement but are still confined for the most part to small single machines, used machinery being more active than new equipment. Dealers are working on a few more inquiries than they were a month ago and among these is one for about 20 machines which the trade believes will result in orders shortly. Virtually no business is coming from the railroads in this territory. The Toledo Crane Co., Bucyrus, Ohio, has just closed a deal with the Imperial Japanese Government for a number of wall cranes for a new navy shipbuilding yard in Japan.

The E. W. Bliss Co. has moved its Cleveland plant from Hamilton Avenue to its new location on St. Clair Avenue and the New York Central Railroad at Bliss Road. On this site the company has erected a machine shop 125 x 350 ft. Later it plans to erect a forge shop. For the present it will discontinue the manufacture of forgings in Cleveland, buying these in the market to meet its requirements.

The National Fireproofing Co., East Palestine, Ohio, will rebuild its plant which was recently burned. Construction will be started as soon as contracts can be placed.

The Crane Co., Chicago, has acquired the plant of the Glenmore Lubricant Co., Lima, Ohio, and will use it as a distributing station for its various lines of products.

The Delphos Ice Machinery Co., Delphos, Ohio, has been incorporated with a capital stock of \$250,000 and has acquired the plant of the Glamorgan Co., which it will equip for the manufacture of ice machinery. The company will make ice machines of from one to five-ton capacity.

The Salem Rubber Co., Salem, Ohio, has been incorporated with a capital stock of \$250,000 and will operate the plant of the Porter Rubber Co. in Salem, making automobile tires. E. A. Tinsman is president and Grant Hill, secretary.

The Hagan Foundry Corporation has placed a contract for a 60 x 60 ft. addition to its Orrville, Ohio, foundry.

The Simon Sign Co., 1729 E. 12th St., Cleveland, has placed a contract for the erection of a two-story plant, 43 x 120 ft., on East Nineteenth Street.

The Scott-Wills Steel Co., Toledo, Ohio, was recently organized to conduct a jobbing business in iron and steel products and has acquired a warehouse at Chicago Street and the Wheeling & Lake Erie railroad. W. W. Scott is president, F. A. Miller, vice-president, and A. B. Wills, secretary and treasurer.

W. J. Carr, secretary Malbohm Motor Co., Sandusky, manufacturer of automobiles, has been appointed receiver of that company and an order of court has been issued for a sale of the plant at auction Nov. 14. It is expected that a reorganization will be effected. Liabilities are placed at \$650,000 and assets at \$800,000.

Baltimore

BALTIMORE, NOV. 7.

Christhif & Ensey, Munsey Building, Baltimore, operating a general contracting business, have acquired property for a new one-story machine shop, 60 x 165 ft. Plans are being prepared.

The crystal Ice & Transfer Co., North Avenue and Chester Street, Baltimore, has awarded contract to Mason & Fox, Law Building, for a two-story addition to its service and repair building, 80 x 180 ft., for company motor trucks, estimated to cost about \$30,000.

The Colonial Hotel Co., Betterton, Md., is having plans prepared for a new power plant for local light and power service. Clark & Dudnick, Drexel Building, Philadelphia, are architects.

The Board of Directors, John Hopkins University, Homewood, Baltimore, is reported to be planning for a one-story machine shop, estimated to cost about \$400,000, including equipment.

Lyon, Conklin & Co., 13 Balderson Street, Baltimore, manufacturers of sheet metal products, have awarded contract to George B. Monmonier & Son, 1711 McCulloh Street, for two new buildings, four-stories, 66 x 75 ft., and one-story, 230 x 434 ft., respectively, estimated to cost about \$75,000.

Thomas B. Finan, Cumberland, Md., and Townsend, Scott & Son, 209 East Fayette Street, Baltimore, are concluding negotiations for the purchase of the Edison Electric Illuminating Co. and the Cumberland Electric Railway Co., both of Cumberland, in excess of \$2,000,000. The new owners are planning for a complete reorganization to be merged under one management. A stock issue will be arranged to provide capital for extensions and improvements, including the installation of electric and other machinery.

The Standard Oil Co., Pratt Street, Baltimore, has tentative plans under way for the construction of a new distributing plant at Crisfield, Md., with extensive tankage department, pipe lines, pumping machinery, etc., to serve the entire district. A site is being selected.

The McHenry-Millhouse Mfg. Co., South Bend, Ind., manufacturer of roofing, has acquired the plant of the Electrolytic Zinc Co., South Sixteenth Street and Second Avenue, Baltimore, for the establishment of branch works. The structure will be remodeled and enlarged, with the installation of equipment. The company is also said to be planning the erection of new works at Canton, Ohio. J. L. Kittinger is general manager.

Fire, Oct. 29, destroyed one of the plants of the Baltimore Brick Co., Maryland Trust Building, Baltimore, with loss estimated at about \$100,000, which included machine shops, power house, brick manufacturing department and other structures, and considerable new machinery. Warren Griffiss is manager.

The Jamison Coal & Coke Co., Cumberland, Md., is planning for the electric operation of its Jamison Mine No. 9, and will install equipment for this purpose. Power service will be furnished by the Monongahela Power & Railway Co.

The Mineral Potash Corporation, 712 Equitable Building, Baltimore, recently organized with a capital of \$750,000, has plans under way for a building at its properties, to be equipped as a grinding plant for feldspar. The works are

estimated to cost close to \$100,000, with machinery to cost about one-half this sum. Louis A. Hazard is president.

The Gibbs Machinery Co., Columbia, S. C., manufacturer of cotton ginning machinery, is planning for the installation of electrically operated equipment for parts production, repair work, etc.

The Building Commission of the State Hospital for the Insane, Goldsboro, N. C., has completed plans for a new power house and ice plant, estimated to cost about \$75,000. Nathan O'Berry is chairman.

The Diamond Holfast Rubber Co., Atlanta, Ga., is completing plans for a new one-story factory, 80 x 240 ft., to manufacture rubber specialties and estimated to cost about \$35,000. A. Ten Eyck Brown, Forsyth Building, is architect.

Loading and unloading machinery and conveying equipment will be installed on the wharf to be erected at the plant of the Wilmington Sugar Refining Co., Wilmington, Del., now in course of construction and designed to occupy a 12-acre site in the vicinity of B Street, South Wilmington. The entire project is estimated to cost in excess of \$7,500,000. The Armstrong & Latta Co., Land Title Building, Philadelphia, is contractor for the sugar plant.

The Bristol Milling & Mfg. Co., Bristol, Va., is planning for the erection of a new ice manufacturing plant, with initial daily capacity of 30 tons, estimated to cost \$50,000. It recently acquired the local plant of the Bristol Milling Co., and has also purchased the property of the Hitch Ice & Mfg. Co., Maryville, Tenn.

The Chesapeake & Ohio Railroad Co., Richmond, Va., H. C. Pearce, director of purchases and stores, will take bids until Nov. 17, for miscellaneous equipment and supplies. Specifications and information at the purchasing office, 1604 First National Bank Building.

Traveling cranes, loading and unloading machinery and other freight handling equipment will be installed on the new municipal piers to be constructed by the City Council, Norfolk, Va. A special election has been called to vote bonds for \$5,000,000, for the project, the work to include a new grain elevator, estimated to cost about \$800,000 with machinery. The initial terminal construction will be in the Sewalls' Point section. The city engineering department will be in charge.

The Groom Motor Service Co., Charlotte, N. C., with headquarters at 720 Mint Street, has arranged for a change of name from the Convertible Oil Gauge Co., to increase its general line of automotive specialty manufacture, at the same time changing its capital from \$25,000 to \$50,000.

Haynesworth & Lawton, Florence, S. C., will build a new cold storage and refrigerating plant, estimated to cost about \$40,000. It will be arranged for early expansion, future work to cost approximately \$100,000 with machinery.

A retort building, 68 ft. long, with industrial railroad, power equipment and other mechanical apparatus will be constructed by the North Charlotte State Creosoting Co., Charlotte, N. C., in connection with its new plant. The company was recently organized with a capital of \$100,000.

The Buck Ice Co., Columbus, Ga., has prepared plans for the immediate erection of a new ice manufacturing factory, 150 x 150 ft., with daily capacity of about 30 tons.

The Maryland Car Wheel Works, Curtis Bay, Baltimore, manufacturer of car wheels, etc., has been reincorporated under the name of the Maryland Car Wheel Co.

Plans are being made by the Maryland Dairymen's Association, Fidelity Building, Baltimore, D. G. Harry, president, for the construction of a plant for the manufacture of butter and other milk products.

Alexander & Garsed, Charlotte, N. C., will rebuild their foundry, which was recently destroyed by fire.

The Baxter & Allen Iron Works, Inc., 17 Pinckney Street, Charleston, S. C., is asking prices and information on electro-galvanizing outfits. A. S. Herbert is secretary of the company.

Pittsburgh

PITTSBURGH, NOV. 7.

The Union Railroad, the Pittsburgh district interplant system of the Steel Corporation, has closed for a lathe, a radial drill and a planer with the Niles-Bement-Pond Co. The West Penn Power Co. has revived a list originally issued last February, calling for 20 tools against which revised quotations have been requested. A Johnstown district coal company recently purchased a motor driven punch and shears valued at \$1600. Small purchases are fairly numerous and the trade also has been figuring on a number of fair-sized inquiries.

There is still some disposition on the part of prospective buyers to move slowly, but the expectation is fairly strong that this tendency will vanish after the turn of the year. It is figured that by then the uncertainty about business will

have been overcome and that financial considerations will give way as a factor in the demand for equipment.

Improvement and extensions at the plant of the Townsend Co., New Brighton, Pa., are reported to involve some machinery purchases.

The crane market does not show much life. The liveliest prospect is the Standard Underground Cable Co., which is expected to place four cranes shortly, two each for its plants here and in St. Louis. The Toledo-Edison Co. is equipping a power plant for which one crane is wanted.

The Gem Mfg. Co., Pittsburgh, has made a further reduction of about 10 per cent in its prices of oilers and torches.

The Standard Sanitary Mfg. Co., Bessemer Building, Pittsburgh, has awarded contract to the Austin Co., 16112 Euclid Building, Cleveland, for a new one-story foundry at New Brighton, Pa., 145 x 180 ft.

The Raylo Co., 1228 Fulton Building, Pittsburgh, manufacturer of mechanical specialties, has completed plans and will take bids at once for a new four-story and basement factory on Philadelphia Street, Indiana, Pa., 50 x 120 ft., estimated to cost about \$85,000.

The National Fireproofing Co., 1126 Fulton Building, Pittsburgh, is planning to rebuild its plant at East Palestine, Ohio, recently destroyed by fire. It will be one-story, 100 x 100 ft., and is estimated to cost about \$60,000. Sidney F. Heckert, Bessemer Building, Pittsburgh, is architect.

Arrangements have been made for the sale of the plant of the Pittsburgh Metal Spinning & Stamping Co., 821-23 Locust Street, Pittsburgh, by the Potter Title & Trust Co., receiver.

The Wilke-Groetsch Co., 4036 Liberty Avenue, Pittsburgh, has filed plans for a new two-story automobile service and repair building, 78 x 100 ft., estimated to cost about \$40,000. John Groetsch is president.

The Madison Auto & Repair Co., Pittsburgh, now being organized, is arranging for the operation of a local repair and assembling plant for automobiles, motor trucks, etc. A parts department will be established. John Wolf and Robert A. Fisher head the company, which is represented by W. F. Stadlander, 415 Frick Building.

The Wyckoff Drawn Steel Co., Economy, near Ambridge, Pa., is planning for the erection of a one-story addition, 60 x 240 ft.

The Townsend Co., New Brighton, Pa., manufacturer of bolts, nuts, rivets, etc., has arranged an improvement and extension program to cost in excess of \$500,000. In addition to the erection of a new three-story and basement structure, 120 x 128 ft., now under way, three other buildings will be constructed. A housing development for employees is also planned. It is expected to give employment to about 500 additional men.

The Arburthnot-Stevenson Co., Penn Avenue, Pittsburgh, has awarded contract to the C. H. Kerr Co., Vanadium Building, for a new one-story automobile service and repair building, 75 x 210 ft., estimated to cost about \$75,000.

The Chesapeake & Ohio Railroad Co., Richmond, Va., is planning for extensions and improvements in its car and locomotive shops at Huntington, W. Va., to cost about \$65,000. A new car parts building will be constructed.

The E. P. Bailey Co., Nitro, W. Va., has completed plans and will soon commence the erection of a new one-story foundry and machine shop, estimated to cost about \$100,000, including machinery.

The American Thermos Bottle Co., Madison Avenue and Forty-sixth Street, New York, has awarded a contract for the superstructure of its new plant at Huntington, W. Va., to the United Erecting Co., Euclid Avenue and East Forty-sixth Street, Cleveland, to be one-story, 100 x 290 ft., equipped for general manufacture, assembling, etc. The Arnold Co., 105 South La Salle Street, Chicago, is engineer. William B. Walker is president.

To finance the erection of its new plant, the Star Glass Co., Star City, near Morgantown, W. Va., has arranged for an increase in capital from \$50,000 to \$150,000. It will cost close to \$200,000, complete, and will replace works destroyed by fire some time ago. J. W. Wiles has recently been re-elected president.

St. Louis

ST. LOUIS, Nov. 7.

The White Truck Co. will erect a two-story sales and service building at Vandeventer and Laclede avenues, St. Louis.

The Johnson Automobile Lock Co. has bought the two-story factory building at 4121 Forest Park Boulevard, St. Louis, where transmission and spare-tire locks will be manufactured.

Clark, Cameron & Butler have leased the one-story building at Nineteenth and Chestnut streets, for an automobile

garage, to be known as the Union Station Garage and Service. The building is 168x109 ft.

A syndicate headed by J. H. McCawley has closed negotiations for the purchase of the half block on the east side of Seventh Street, extending from Walnut to Elm streets, St. Louis, as a site for a garage. The operation, including the cost of the site, involves an investment of \$500,000.

Work has been started on the \$1,000,000 plant of the Standard Underground Cable Co., in the northwest industrial section of St. Louis.

Detroit

DETROIT, Nov. 7.

The new Durant Motors Corporation has placed with the Continental Motors Corporation of Detroit and Muskegon, Mich., an order for 50,000 to 100,000 automobile engines and parts, involving the expenditure of from \$12,000,000 to \$15,000,000. The Muskegon plant of the Continental company, where the order will be filled, will increase its working force from approximately 1300 to more than 3000 by next spring.

Another Michigan concern which will benefit greatly by the advent of Durant motors is the Autobody Company, Lansing, Mich., which, it is announced, has the order for all open car bodies, involving several million dollars. This company will increase its working force probably by at least 500 men, very shortly and it is said will soon be in the market for additional equipment.

The Ford Motor Co. will build a 60 ft. addition to its body plant at Iron Mountain, Mich.

The Steel Furniture Co., Grand Rapids, Mich., which makes metal stampings, will soon start the erection of a two-story addition, 100 x 150 ft. Several departments have been working overtime for the last five months.

Construction has been started by the John Widdecomb Co., Grand Rapids, Mich., on a new machine shop, 50 x 75 ft., at Fifth and Muskegon streets.

Plans are being completed for a new power plant for the village of Marlette, Mich. R. L. Blackman is the designer.

The Atlas Drop Forge Co., Lansing, Mich., is preparing plans for another addition.

The Barnard Toy Co., manufacturer of wood, metal and rubber toys, with factories at Ann Arbor, Mich., and Ashland, Ohio, is moving its plants to 2755-65 West Fort Street, Detroit, where it is expected to get into production by Nov. 25.

The Motor Wheel Corporation, Lansing, Mich., has awarded contract to the H. G. Christman Co., Lansing, for a new one-story and basement factory, 120 x 240 ft. C. C. Carlton is secretary.

The Gray Motor Corporation, Detroit, recently organized by Frank L. Klingenschmidt, formerly vice-president Ford Motor Co., is perfecting details for the establishment of a local plant for the manufacture of automobiles, to sell at about \$500. Mr. Klingenschmidt is president.

The Leasia Motor Sales Co., Detroit, care of Arnold & Shreve, architects, 308 Humber Building, Highland Park, Detroit, is having plans prepared for a new two-story automobile service building, with repair shop, on Woodward Avenue, estimated to cost about \$42,000.

The University of Michigan, Ann Arbor, has preliminary plans under way for a new mechanical shop and engineering laboratory, estimated to cost about \$750,000. It is expected to commence work early in 1922. Smith, Hinchman & Grylls, Washington Arcade Building, Detroit, are architects. S. W. Smith is secretary at the university.

The Associated Motor Industries, Inc., recently organized as a merger of a number of automobile companies, will take over the property of the Jackson Motors Corporation, Jackson, Mich., for \$1,105,000. The plant will be operated as one of the units of the consolidation.

Following a reorganization of the Briscoe Motor Co., Jackson, Mich., and change of name to the Earl Motors, Inc., notice has been filed of increase in capital from \$21,500,000 to \$41,500,000, to provide for expansion. A bond issue of \$5,000,000 is being arranged for plant enlargements, new machinery, etc. Clarence A. Earl, formerly vice-president Willys-Overland Co., Toledo, Ohio, heads the company.

Cincinnati

CINCINNATI, Nov. 7.

The Big Four Railroad was the leading purchaser during the past week, closing for practically all of the equipment asked for its Beech Grove shops. The greater part of this equipment will come to Cincinnati builders. Local manu-

facturers report that, while conditions are not improving very fast, they are getting no worse, and they are looking forward to better things within the next two or three months. The threatened railroad strike undoubtedly had a depressing effect on the industry, as a number of inquiries which were expected to be closed have now been held up indefinitely. Local dealers report orders as fairly good, though the demand is mostly for used tools and in practically all instances only one or two are purchased.

The Guaranty Trust Co., New York, has filed a petition for foreclosure of the \$2,000,000 mortgage which it holds on the Barney & Smith Car Co., Dayton, Ohio. The plant will be offered at public auction within a few weeks. It is now being operated under a receivership.

Milwaukee

MILWAUKEE, Nov. 7.

The most encouraging feature of the machine-tool trade is the better prospect of business development, rather than any immediate revival of a marked character. Local metal-working shops are continuing to increase production, although slowly. Orders are increasing for one or two tools for replacement or piecing out equipment for greater efficiency. Large lots are absent, although several fair-sized requirements of railroads are in prospect. Generally speaking, inquiry is somewhat more active than in the last three to four weeks. The automotive industries are manifesting greater interest but demand from this source is still limited.

The Davis & Thompson Co., 251 Reed Street, Milwaukee, organized about three years ago to develop and manufacture a new type of continuous milling machine, contemplates the erection of a machine shop in the spring. The investment, it is said, will be approximately \$100,000. Practically a full complement of new equipment will be required. Frank M. Davis is president, and J. T. Thompson, vice-president and treasurer. Details are withheld for the present.

The Purcell-Wischan Co., Madison, Wis., automobile dealer, has engaged Klug & Smith, Mack Block, Milwaukee, to design and supervise the construction of a brick and steel garage and service building, 117 x 132 ft., two stories and part basement, to cost \$125,000.

The Gugler Lithographing Co., 694 Broadway, Milwaukee, has awarded the general contract to the Universal Construction Co., 97 Wisconsin Street, local, for a \$100,000 printing and lithographing plant, 66 x 116 ft., three stories and basement. Additional equipment, including electric motors, etc., is being purchased. The architect is Eric Gugler, New York City.

The Madison Hardware Specialty Co., 617 Washington Avenue, Madison, Wis., manufacturer of and wholesale dealer in hardware, has plans by James R. and Edward J. Law, architects, Madison, for a three-story and basement factory and warehouse, 63 x 110 ft., estimated to cost \$85,000.

The Board of Education, Stevens Point, Wis., has engaged Robert A. Messmer & Brother, architects, 221 Grand Avenue, Milwaukee, to design a three-story high school, 60 x 160 ft., as the first of three units to cost in the aggregate about \$500,000. A vocational training institute will be contained in the first unit. Bids will be taken about Dec. 1. J. M. Pfiffner is chairman of the building committee.

The Board of Education, Beaver Dam, Wis., has decided to proceed with erecting and equipping a new high school and industrial training institute to cost \$200,000. Parkinson & Dockendorff, La Crosse, Wis., are architects. It will be U-shaped, 87 x 139 and 37 x 130 ft., two stories and basement. Bids probably will be taken about the middle of December.

The University of Wisconsin, Madison, M. E. McCaffrey, secretary, is purchasing equipment for the forge shop of the new unit of the engineering shops now being completed at Camp Randall.

The J. P. Rundle Mfg. Co., Layton Park, Milwaukee, which recently let contracts for a boiler house addition, has placed contract with the John L. Stanage Co., 3216 Villet Street, for a three-story addition, 50 x 100 ft., of brick and concrete, with steel sash, to cost about \$45,000. Robert T. Hazelwood is president and general manager.

The Oshkosh Tractor Co., Oshkosh, Wis., expects to award contracts this week for the superstructure of its new factory, 152 x 380 ft., one story, with sawtooth roof and steel sidewalk and monitor sash. Foundations have been completed. The architects are Auler & Jensen, Oshkosh. The plant will cost about \$175,000, including equipment. A. D. Paine is president.

The Randolph Wagon Works, Randolph, Wis., has let the general contract to the Hutter Construction Co., Fond du Lac, Wis., for erecting a new two-story factory, 100 x 200 ft., estimated to cost \$65,000.

The Board of Education, Whitehall, Wis., has plans by Oppenhamer & Obel, architects, Wausau, Wis., for a new \$100,000 high school with vocational training department, but probably will not ask bids until after Jan. 1, 1922. A. D. Peterson is secretary.

The Central South

St. Louis, Nov. 7.

The Missouri Holding Co., Broadway Hotel Building, Monett, Mo., is planning for a new one-story factory on Main Street, to manufacture dehydration machinery and parts, estimated to cost about \$55,000. Preliminary plans are under way. J. Nelson, address noted, is secretary.

The Hall & Brown Woodworking Machinery Co., 1913-33 North Broadway, St. Louis, has completed plans and will soon take bids for an addition, estimated to cost about \$50,000, including improvements in present works. Preston J. Bradshaw, International Life Building, is architect.

The Kansas City Power & Light Co., Kansas City, Mo., has been granted permission to issue bonds for \$2,000,000, the proceeds to be used for extensions and improvements, general operations, etc.

J. E. Dougherty, 127 Blow Avenue, St. Louis, has plans under way for a new two-story automobile service and repair shop, 50 x 115 ft., at Thirty-ninth Street and McRee Avenue, estimated to cost close to \$50,000. Work will commence at an early date.

The Chicago, Rock Island & Pacific Railroad Co., 139 West Van Buren Street, Chicago, is considering rebuilding its car and locomotive shops at Pratt, Kan., recently destroyed by fire. The work is estimated to cost \$130,000.

The Knoxville Fertilizer Co., Knoxville, Tenn., has awarded contract to the Foundation Co., 120 Liberty Street, New York, for its new plant at Vestal, estimated to cost about \$200,000. Work will commence at once. Manley & Young, 314 West Hill Avenue, Knoxville, are architects. James W. Dean is secretary and treasurer.

The Johnson Automobile Lock Co., St. Louis, has acquired a building at 4121 Forest Park Boulevard for the establishment of a new plant. Operations will begin at an early date. Joseph Hoffman is secretary and general manager.

The American Gasoline Co., Kansas City, Mo., is planning for the enlargement of its local oil refinery, comprising the former plant of the North American Refining Co. It is proposed to develop a capacity of about 4000 bbl. of oil per day, with a lubricating plant to have a daily output of 300 bbl.

The Signal Mountain Portland Cement Co., James Building, Chattanooga, Tenn., is perfecting details for the immediate erection of its new plant, estimated to cost close to \$500,000 with equipment. John L. Senior, Jackson, Mich., is president of the company. Ralph Dow, Chattanooga address, is in charge.

The Board of Education, Coffeyville, Kan., will install machine shop and other mechanical equipment in the manual training department at its new junior high school. H. E. Martin is president.

F. R. Lawson, Nowata, Okla., will take bids at once for the construction of a one and two-story ice-manufacturing plant at Coffeyville, Kan., estimated to cost about \$90,000, including machinery. C. A. Henderson, Coffeyville, is architect.

The J. P. Cantrell Oil Co., Crane, Mo., is planning for the construction of a new electric light and power house. An ice-manufacturing plant will also be constructed.

Freight handling machinery will be installed at the new freight depot to be erected at Oklahoma City, Okla., by the Missouri, Kansas & Texas Railway Co., St. Louis, to be one and two-stories, 45 x 600 ft. A. L. Sparks, company address, is architect and engineer.

The Buick Motor Co., 433 Monroe Avenue, Memphis, Tenn., has arranged for the erection of a new two-story service building, with repair shop, 100 x 218 ft. W. C. Lester, News-Scimitar Building, is architect.

The John G. Duncan Co., Jackson and Central streets, Knoxville, Tenn., is making inquiries for rebuilt locomotives, about 24-ton, standard gauge.

W. E. Toler, Pawnee, Okla., is making inquiries for mechanical fans, exhaust and suction types, for cotton seed handling.

The Bridges Wheel Corporation, Texarkana, Ark., is planning for the purchase of special dies for the manufacture of wheels for steam and electric railroad cars. J. D. Cook is vice-president.

Seattle

SEATTLE, Nov. 1.

The Oregon Brass Works, North Second Street, Portland, Ore., has awarded contract to Camp & DuPuy, 426 East Alder Street, for a new one-story foundry.

Loading and unloading machinery, hoisting equipment, etc., will be installed on the new dock to be constructed by the Inman-Poulsen Lumber Co., Portland, at its plant in South Portland.

The Consolidated Diamond Refining Co., Spokane, Wash., has acquired property at Dishman, as a site for a new oil refinery. Preliminary plans are said to be in preparation.

J. R. Cartwright, Harrisburg, Ore., has completed plans for a new one-story automobile service and machine repair shop, 100 x 100 ft.

The Bureau of Yards and Docks, Navy Department, Washington, has plans in preparation for a new radio plant at Newport, Wash. Bids for tower construction and other work will be asked at an early date.

Freight handling and conveying equipment, etc., will be installed on the new pier to be constructed by the Grays Harbor Port Commission, Aberdeen, Wash., estimated to cost about \$150,000. The Grays Harbor Construction Co. will build the structure.

The Seattle Box Co., Fourth Avenue and Spokane Street, Seattle, is completing plans for a new three-story addition, 56 x 75 ft. Schack, Young & Meyers, Libby Building, are architects.

The Doerenbecher Furniture Co., Portland, Ore., has completed plans and will commence the immediate erection of a new six-story building at its plant on Sullivan's Gulch. Plans are now being prepared for a number of other additions.

The Gulf States

BIRMINGHAM, Nov. 7.

The City Council, Lake Worth, Fla., is planning for enlargements in its municipal electric power plant to include the installation of a new engine and other machinery. Ward Randolph is city engineer.

The Central Texas Ice, Light, Water & Sewerage Co., Mexia, Tex., will install new machinery at its electric plant, including pumping equipment, to cost about \$50,000.

The Tipps Foundry & Machine Co., Austin, Tex., is planning to rebuild the portion of its plant, recently destroyed by fire.

The reorganization committee of the Texas Motor Car Association, Fort Worth, Tex., manufacturer of automobiles, has secured funds to acquire the property from the receivers and negotiations for the sale are now under way. Upon acquisition it is proposed to improve the plant and begin immediate operations. Captain L. W. Bilburn heads the committee.

The Anderson County Coal Co., Box 68, Palestine, Tex., is making inquiries for turbine engine equipment to be used in connection with lignite mining operations. J. J. Barry is manager.

The Texas-Mexia Refinery Co., Mexia, Tex., is planning to break ground about the first of the year for a local oil refinery. Plans are being prepared.

The Lone Star Ice & Cold Storage Co., Austin, Tex., will commence the immediate erection of a new ice and cold storage plant on East Second Street, estimated to cost about \$50,000. A. J. Zilker is president.

The Southwest Portland Cement Co., El Paso, Tex., has plans under way for its new plant on property recently acquired in the vicinity of Waco, Tex. It is estimated to cost in excess of \$2,000,000. O. J. Binford is secretary.

The Common Council, Vernon, Tex., is considering the construction of a new municipal electric power plant. An ice-manufacturing plant will also be erected. Details and estimates of cost are being made.

The Consolidated Ice Co., Monroe, La., is planning for extensions and improvements in its ice-manufacturing factory, estimated to cost about \$50,000, including equipment.

Indiana

INDIANAPOLIS, Nov. 7.

The Crane Co., 836 South Michigan Avenue, Chicago, has awarded contract to Ericson & Crumlish, 123 West Madison Street, for the erection of its proposed new one-story machine shop and branch warehouse at East Chicago, Ind., estimated to cost about \$30,000.

The Evansville Sash & Door Co., Evansville, Ind., has acquired land at Ohio Street and Wabash Avenue, and has preliminary plans under way for a new plant, 250 x 350 ft., to be either two or three stories.

The American Car & Foundry Co., Terre Haute, Ind., has awarded contract to the Austin Co., 16612 Euclid Avenue, Cleveland, for a new one-story machine and forge shop, 225 x 290 ft., to replace the building recently destroyed by fire. It will cost about \$60,000. Construction will commence at an early date. E. D. Buick is district manager.

The Columbian Enameling & Stamping Co., Terre Haute, Ind., manufacturer of enameled kitchen utensils, etc., is completing plans for a one-story addition. J. G. Vrydag, 1515 South Eighth Street, is architect.

California

LOS ANGELES, Nov. 1.

The Western Pipe & Steel Co., 1670 Broadway, Los Angeles, has plans under way for works at Slauson and Santa Fe avenues, where about 20 acres has been secured, estimated to cost in excess of \$75,000. The company engineering department is in charge.

The Manufacturers' Building Corporation, San Francisco, forming a consolidation of the M. & H. Plating Works, Larkin Specialty Co., and the Bankers' Utility Co., all of this city, has awarded contract to F. D. Boese, Call Building, for a new three-story factory at First and Clementina streets, estimated to cost about \$30,000.

The Weaver Roof Co., 339-41 East Second Street, Los Angeles, has plans under way for rebuilding its plant on East Twenty-fourth Street, recently destroyed by fire with loss estimated at \$100,000, including equipment. It will be located on a fire-acre tract, and will be equipped for considerable increased production. Sylvester L. Weaver is president.

The Southern Pacific Co., Southern Pacific Building, San Francisco, is planning for the erection of a number of additions to its shops at Sacramento. A new foundry will be constructed, estimated to cost \$125,000; new planing mill, estimated to cost \$185,000 with machinery; new fire protection system, oil supply and pumping system, and other improvements to cost about \$140,000, with equipment. The work will be in addition to present expansion now under way.

The International Shales Process Corporation, care of the Golden State Construction Co., 415-17 Delta Building, Los Angeles, has awarded contract to the latter company for a number of oil refining plants in California, Utah, Nevada and Colorado, each estimated to cost about \$85,000.

The Madera Sugar Pine Co., Madera, Cal., has preliminary plans under way for a new plant, to include a four-band saw mill. It will be equipped for an annual output of about 65,000,000 ft.

The Pacific Fruit Express Co., 65 Market Street, San Francisco, a subsidiary of the Southern Pacific Railroad, is considering the erection of a new ice-manufacturing plant at Santa Barbara, Cal., to cost about \$75,000 with machinery.

Canada

TORONTO, Nov. 7.

While no additional life has appeared in the machine tool markets the past week, a very favorable demand still exists. Inquiries are also good and if only a small portion of those now before dealers turn into sales some good business will develop in the near future. The movement of small tools continues steady for limited quantities.

The York Sandstone Brick Co., Ltd., East Toronto, is in the market for a hardening cylinder for use in sand and lime brick manufacture.

The foundry at Chicoutimi, Que., owned by Cie de Pulpe de Chicoutimi, was destroyed by fire with a loss of \$50,000. It is expected that it will be rebuilt without delay and new equipment purchased.

The Ontario Show Case Co., 321 King Street West, Toronto, has awarded contract for a factory to cost \$50,000.

The Goldstein Mfg. Co., 180 John Street, Toronto, has let contract to L. E. Dowling, 167 Yonge Street, for a building to cost \$75,000. It manufactures copper and brass tubes, etc.

The Mona Petroleum Products Co., 120 Adelaide Street West, Toronto, will build a refinery at Trenton, Ont.

The N. B. Prichard Mfg. Co.'s plant, operated at Sherbrooke, Que., by the Dominion Metal Co., is to be enlarged by a three-story brick, concrete and steel building, 40 x 150 ft.

The Anglo-American Motors, Ltd., recently incorporated will establish a plant at Trenton, Ont., to manufacture the La Marne car. Plans call for 10 buildings, each a complete and independent unit, to be equipped with automatic machinery. Col. C. R. Hill is president; F. J. Neale, vice-president; August A. Bolte, secretary-treasurer, and F. Richards, consulting engineer.

New England

BOSTON, Nov. 8.

Many of the prospects developed during the past month have failed to materialize and the day-to-day sales are barely holding their own in number and in dollars and cents. The machine tool market acts as though it is digesting its first recovery in business preparatory to another spell of activity. During this comparative lull in sales machine tool builders' prices continue to undergo further readjustment. For instance, a maker of small production and tool room lathes has reduced prices on the former 10 per cent and will shortly announce a reduction of as much or more on tool room machines. A New England manufacturer of upright drills has dropped his price 15 per cent, and a Michigan maker of radial drills as much. A line of air chucks has been cut 10 per cent. Some of the manufacturers of planers have notified local representatives that prices will remain unchanged.

Outstanding prospects have every indication of being closed before Jan. 1. In the meantime going business is confined largely to small industrial concerns, whose relatively small overhead permits them to underbid the large users of machine tools. An encouraging feature the past week is the fact that about 80 per cent of the machines purchased were new. The local used machinery market was influenced somewhat by an auction sale at South Boston by a local dealer of a considerable amount of equipment at very reasonable prices.

Sales the past week include: a 14-in. x 4-ft. tool room and two watch tool lathes to a local cutlery manufacturer; a No. 88 Standard power press to a South Boston manufacturer; a Fraser universal grinding machine to a Fall River, Mass., interest; a 16-in. crank shaper and a Brown & Sharpe surface grinder to a small Saugus, Mass., maker of automobile parts; several 14-in. New England made lathes and a used milling machine to a textile machinery manufacturer; and a No. 5A power press, several hand milling machines and considerable transmission equipment to Providence, R. I., concerns. A Pawtucket, R. I., manufacturer of an automobile accessory has purchased one 18-in. x 6-ft., one 16-in. x 8-ft. and one 14-in. x 6-ft. tool room lathe, and is considering the purchase of additional turning tools. The same firm is reported to have closed on a 16-in. Potter & Johnson shaper, a No. 2 Brown & Sharpe surface grinder, a 10 x 24-in. universal cylindrical grinder, a No. 1 Kearney & Trecker milling machine with a vertical attachment, a No. 2 size four-spindle and a No. 1 size four-spindle sensitive drill and a 20-in. vertical drill press. A central Massachusetts trade school is about to close on a 14-in. x 6-ft. engine lathe. The C. C. Carter Machinery Co., Providence, R. I., has purchased the machine tool equipment of the Flexograph Co., that city.

Few new prospects have developed. The Rutland Railroad Co., Rutland, Vt., is asking prices for estimating purposes for its 1922 budget on the following equipment: One double-end punch and shear with 42-in. throats; one 3-ft. radial drill; one 17-in. x 8-ft. geared head lathe; one 24-in. shaper; one 200-lb. Beaudry hammer; two 14-in. Blount combination wet and dry grinders; one 4-in. centering machine, and one 22 x 33 x 72-in. gap lathe. Two local shipyards are inquiring on used special machinery. A Cleveland jewelry manufacturer is sounding out the used market on 80 to 100-lb. foot power drop hammer equipment.

The local crane market shows more activity than it has in months. Manning, Maxwell & Moore, Inc., has sold a 30-ton electric crane to the Pacific Mills. The Power Construction Co., Worcester, Mass., bought a 5-ton one-motor Niles crane with two hand movements, while the Simbroco Stone Co., West Roxbury, Boston, closed on a 5-ton three-motor Niles crane with a 60-ft. span. A Providence, R. I., machinery interest is asking bids on four 5-ton shop cranes, and the American Woolen Co.'s 25-ton and 30-ton crane project is active.

Bids closed last week for an addition and alterations to the No. 5 machine room, Bird & Son, Walpole, Mass.

The Massachusetts Institute of Technology, Cambridge, Mass., is considering the erection of a one story, 45 x 90-ft. laboratory building for general combustion engines.

The Thomas Loughlin Co., 143 Fore Street, Portland, Me., ship chandlery hardware, last week was damaged to the extent of \$30,000 by fire. Repairs will be made.

The Plainville Casting Co., Plainville, Conn., which started last June, is erecting two additions and contemplates more. Henry Washburn is president.

The Donnelly Brick Co., New Britain, Conn., plant, recently destroyed by fire, will be replaced by a new one, which will include office buildings, a garage, tunnel kiln unit, dryer room and machine room.

Plans have been drawn for a 68 x 70 ft. power station for the Malden Electric Co., Malden, Mass., to cost \$65,000.

Bids have been taken by the Boston & Maine Railroad Co. for a boiler house and locomotive wash room at Concord, N. H. A. B. Corthell, 300 North Station, Boston, is engineer.

The Bush Mfg. Co., Hartford, Conn., radiators for trucks, tractors and airplanes, has purchased land and buildings on Wellington Avenue, that city. Col. Richard J. Goodman is president.

The fuse departments of the General Electric Co.'s D. & W. Fuse Co., Auburn, R. I., plant are to be transferred to Bridgeport, Conn., and the fuse cut out departments to Pittsfield, Mass., and the plant turned over to the manufacture of wire products. Louis W. Downes is manager.

The Leavitt Machine Co., Orange, Mass., general machinery, has increased capitalization from \$10,000 to \$250,000. Of the 2400 new shares, par \$100, 1500 are to be paid as a stock dividend in the ratio of 15 new shares for each one held. The remaining 900 shares are to be paid for in cash or its equivalent. The increased capitalization represents excess surplus over liabilities. The company began business in 1890. Bayard P. Dexter is president.

The Griswold, Richmond & Glock Co., 2 West Main Street, Meriden, Conn., sheet metal and metal products, has awarded a contract to L. A. Miller, 22 Church Street, for a one-story plant, 50 x 160 ft., at West Main and South Grove streets, to cost \$40,000.

A one-story power house, 41 x 72 ft., will be erected by the R. H. Long Co., Millbrook Street, Worcester, Mass., in connection with its new five-story plant, 75 x 600 ft., now in course of construction, to be equipped for the manufacture of automobiles. The entire plant will cost \$500,000.

Fire, Oct. 31, destroyed part of the plant of the Chadwick-Boston Lead Co., 10 Hampden Street, Roxbury, Mass., with loss of \$30,000.

The Norwalk Lock Co., Norwalk, Conn., has awarded a contract to the T. J. Pardy Construction Co., Bridgeport, Conn., for a one-story addition, 50 x 96 ft., work to start at once.

The Hegy Co., Inc., South Main Street, Holyoke, Mass., has completed plans for a one-story power house.

A machine and repair shop will be installed in the new automobile service building to be erected by J. Jacobsen, 1074 Broad Street, Hartford, Conn., one-story, 80 x 145 ft., to cost \$45,000.

The Malden Electric Co., 129 Pleasant Street, Malden, Mass., is completing plans and will soon call for bids for a power house at Broadway and Oakland Avenue, Everett, Mass., 68 x 75 ft., to cost \$65,000. The Charles H. Tenney Co., 201 Devonshire Street, Boston, is engineer.

The Instant Freezer Corporation, Springfield, Mass., is arranging an increase in capitalization from \$25,000 to \$500,000, for general expansion. The company will manufacture an electrically-operated metal ice-cream freezer and has closed a contract with the Victor Saw Co., Springfield, for initial production at its works. Paul Werber is president, and Harold Kittenger, treasurer.

The Plainville Casting Co., Plainville, Conn., considers the erection of extensions, following the completion of two one-story buildings. Henry Washburn is president.

Tileston & Hollingsworth, 49 Federal Street, Boston, paper manufacturers, have awarded a contract to the Aberthaw Construction Co., 27 School Street, for a one-story addition on River Street, Hyde Park, to cost \$22,000.

The New York, New Haven & Hartford Railroad Co., New Haven, Conn., has awarded a contract to the American Creosoting Co., 17 Battery Place, New York, for a tie-treatment plant at New Haven.

The Berger Mfg. Co. of Massachusetts, 450 Broadway, Boston, metal ceilings, cornices, etc., has filed plans for a two-story building, 160 x 240 ft., at 307-9 Dorchester Avenue, to cost \$75,000. Joslin & Landry, 161 Devonshire Street, are contractors.

The Girard Motor Co., 145 King Street, Northampton, Mass., has plans for a one-story machine repair and automobile service works on North Street, 100 x 125 ft., to cost \$50,000. F. Girard is head.

The New England Tire & Rubber Co., Holyoke, Mass., plans immediate occupancy and operation of its new plant at South Holyoke, now practically completed. It expects ultimate output of 1000 tires and 1500 tubes daily. The company recently increased its capital from \$3,000,000 to \$53,000,000.

The board of directors, Fall River Hospital, Fall River, Mass., has plans for a one-story power house at the institution, 53 x 143 ft. Edward M. Corbett, Fall River, is architect.

Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The quotations given below are for small lots, as sold from stores in New York City by merchants carrying stocks.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipment in carload lots from mills, these prices are given for their convenience.

On a number of articles the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE under the general heading of "Iron and Steel Markets" and "Non-ferrous Metals."

Iron and Soft Steel Bars and Shapes

Bars:	Per Lb.
Refined bars, base price	2.78c.
Swedish bars, base price	10.00c.
Soft steel bars, base price	2.78c.
Hoops, base price	3.88c.
Bands, base price	3.43c.
Beams and channels, angles and tees	
3 in. x ¼ in. and larger, base.....	2.88c.
Channels, angles and tees under 3 in. x	
¼ in., base	2.78c.

Merchant Steel

	Per Lb.
Tire, 1½ x ½ in. and larger.....	2.75c.
(Smooth finish, 1 to 2½ x ¼ in. and larger)...	2.95c.
Toe calk, ½ x ¾ in. and larger.....	3.45c.
Cold-rolled strip, soft and quarter hard.....	6.25c. to 7.25c.
Open-hearth spring steel	4c. to 6c.
Shafting and Screw Stock:	
Rounds	3.88c.
Squares, flats and hex.....	4.38c.
Standard cast steel, base price	14.00c.
Extra cast steel	17.00c.
Special cast steel	22.00c.

Tank Plates—Steel

¼ in. and heavier	2.88c.
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Sheets

Blue Annealed	Per Lb.
No. 10	3.53c.
No. 12	3.58c.
No. 14	3.63c.
No. 16	3.73c.

Box Annealed—Black

	Soft Steel C. R., One Pass Per Lb.	Blued Stove Pipe Sheet, Per Lb.
Nos. 18 to 20	3.80c. to 4.05c.
Nos. 22 and 24	3.85c. to 4.10c.	4.50c.
No. 26	3.90c. to 4.15c.	4.55c.
No. 28	4.00c. to 4.25c.	4.65c.
No. 30	4.25c. to 4.50c.
No. 28, 36 in. wide, 10c. higher.		

Galvanized

	Per lb.
No. 14	4.10c. to 4.35c.
No. 16	4.25c. to 4.50c.
Nos. 18 and 20	4.40c. to 4.65c.
Nos. 22 and 24	4.55c. to 4.80c.
No. 26	4.70c. to 4.95c.
No. 27	4.85c. to 5.10c.
No. 28	5.00c. to 5.25c.
No. 30	5.50c. to 5.75c.
No. 28, 36 in. wide, 20c. higher.	

Welded Pipe

Standard Steel	Black Galv.	Wrought Iron	Black Galv.
½ in. Butt... —55	—40	¾ in. Butt... —30	—13
¾ in. Butt... —60	—46	1-1½ in. Butt... —32	—15
1-3 in. Butt... —62	—49	2 in. Lap.... —27	—10
3½-6 in. Lap... —59	—45	2½-6 in. Lap... —30	—15
7-8 in. Lap... —55	—41	7-12 in. Lap... —23	—7
9-12 in. Lap... —54	—40		

Steel Wire

	Per Lb.
Bright basic	4.00c.
Annealed soft	4.00c.
Galvanized annealed	4.75c.
Coppered basic	4.50c.
Tinned soft Bessemer	6.00c.

*Regular extras for lighter gages.

Brass Sheet, Rod, Tube and Wire

	BASE PRICE
High brass sheet	16¼c. to 19¼c.
High brass wire	17¼c. to 21¼c.
Brass rod	14¼c. to 20¼c.
Brass tube, brazed	27½c. to 31½c.
Brass tube, seamless	19 c. to 20½c.
Copper tube, seamless	20½c. to 22¼c.

Copper Sheets

Sheet copper, hot rolled, 24 oz., 20½c. to 23½c. per lb. base.

Cold rolled, 14 oz. and heavier, 2c. per lb. advance over hot rolled.

Tin Plates

Bright Tin	Grade	Grade	Coke—14-20	Primes	Wasters
	"AAA"	"A"			
	Charcoal	Charcoal	80 lb...	\$6.80	\$6.55
	14x20	14x20	90 lb...	6.90	6.65
	IC.. \$10.75	\$9.25	100 lb...	7.00	6.75
	IX.. 12.00	10.75		IC.. 7.15	6.90
	IXX.. 13.75	12.25		IX.. 8.15	7.90
	IXXX.. 15.50	14.00		IXX.. 9.15	8.90
	IXXXX.. 17.00	15.75		IXXX.. 10.15	9.90
				IXXXX.. 11.15	10.90

Terne Plates

8-lb. Coating 14 x 20	
100 lb.	\$7.50
IC	7.75
IX	8.00
Fire door stock	10.50

Tin

Straits, pig	31c.
Bar	38c. to 40c.

Copper

Lake ingot	15½c.
Electrolytic	15¼c.
Casting	15c.

Spelter and Sheet Zinc

Western spelter	6½c. to 7c.
Sheet zinc, No. 9 base, casks.....	11½c. open 12c.

Lead and Solder*

American pig lead	5¼c. to 6¼c.
Bar lead	6¼c. to 7c.
Solder, ½ and ⅓ guaranteed	21½c.
No. 1 solder	19½c.
Refined solder	16c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb.....	80c.
Commercial grade, per lb.....	40c.
Grade D, per lb.....	35c.

Antimony

Asiatic	6½c. to 6¾c.
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Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb....	29c. to 31c.
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Old Metals

The market is quiet with values practically unchanged. Dealers' buying prices are nominally as follows:

	Cents Per Lb.
Copper, heavy and crucible.....	10.25
Copper, heavy and wire	9.75
Copper, light and bottoms	8.00
Brass, heavy	5.00
Brass, light	4.00
Heavy machine composition	7.50
No. 1 yellow brass turnings	4.75
No. 1 red brass or composition turnings.....	6.50
Lead, heavy	3.75
Lead, tea	2.50
Zinc	2.25

